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CANCER OF THE CERVIX UTERI

SOME PERTINENT FACTS CONCERNING THE TREATMENT

H. S. CROSSEN, M.D.
ST. LOUIS

Cancer of the cervix is such a large subject, with so many diverging angles and differences of opinion and shades of meaning in the terms used, that discussions in medical meetings, even lengthy discussions, often fall short of achieving clarity as to the essentials of treatment in general or even as to the real treatment program of the participants in the discussion.

As a consequence, to the profession in general the real advances in effective treatment are buried beneath such a mass of disputative material and verbose discussion of diverting points and bizarre proposals that they are lost sight of to a large extent. To such a degree does this confusion prevail that it has generated an unwarranted feeling of pessimism in regard to the cure of this disease. To judge from some expressions in literature and discussions, it would seem a question whether any definite advance has been made in the cure of cancer of the cervix or whether any patient is ever cured. Because of the confusion and contradictions, some earnest and thoughtful practitioners feel helpless and hopeless when confronted with a case of well developed carcinoma of the cervix.

Such unwarranted pessimism necessitates frequent reiteration of the fundamental facts that (1) a goodly number of patients with even advanced carcinoma of the cervix are cured by the treatment of today and (2) they are cured without the high primary mortality that was necessary for the cure of even early cases in former times.

In a serious disease in which there are great differences of opinion in regard to treatment, study and experience are necessary to sift the wheat from the chaff. When a physician undertakes the treatment of a patient with cancer of the cervix, he is pitting his knowledge and skill and judgment against a relentless process which, unless stopped, will cause the death of the patient in a comparatively short time. And the process cannot be stopped by a free flow of words or by a pleasing discussion or even by a logical analysis of the various methods of treatment. It can be stopped only by the immediate and thorough use of some agent that will remove the cancer cells or kill them where they are.

There are certain features that make the treatment of cancer, particularly cancer of the cervix, dangerous—dangerous from the standpoint of failing to give the patient the chance for life she might have had, and dangerous from the standpoint of advocating methods that may lead others into serious error. Here, as elsewhere, "fools rush in where angels fear to tread," and as a rule the less experience the fool has had in the study of these cases the greater his certainty that he knows it all. As a consequence, hundreds of patients with cancer of the cervix are being treated with halfway measures by physicians and surgeons who do not even comprehend, much less employ, the essentials of really effective treatment.

The long time over which observation is necessary to establish a cure, and the variations in the patient's condition from other causes, make impossible quick judgment as to the real effect of proposed remedies. These elements also favor the flood of fake "cancer cures" that flourish as financial parasites fattening on the meager resources of the ill advised cancer victims.

The fact that it takes years to establish the real curative value of a remedy is a strong reason for avoiding frequent changes of treatment. With the patient's life hanging in the balance, it is not safe to give up a tried and proved method for some attractive new proposal that may appear better but may prove to be worse.

At present there is entirely too much experimentation in this serious matter by unqualified persons, and too much clinical substituting of new and unproved methods in the general professional handling of these patients. In this desperate struggle between life and death, those weapons must be employed on which absolute dependence can be placed. A thorough study and experienced training in the use of one or two dependable measures will carry one much farther toward a cure than the hasty adoption of new proposals before they have been submitted to crucial tests. Consider what a multitude of remedies have been proposed and used for cancer, even in the last twenty years, and the hundreds of patients who have perished under the use of remedies that we know now could not be effective. Of all the numerous remedies proposed for cancer of the cervix, there are only two that have stood the test of time and can at this moment be absolutely depended on; namely, surgery and radiation. There are some other hopeful measures under experimentation, but no measure is safe for general use until time and experience have demonstrated clearly that it can do for the patient at least as much as the proved method which it displaces.

PROGRESS MADE IN TREATMENT

As to the fact and extent of real improvements, a brief historical perspective will make clear the heartening advance made and the substantial results secured by the professional study of this subject. It is interesting to glance back over the stages by which treatment

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of this disease progressed from absolute failure to the definite success and increasingly hopeful outlook of the present day.

Some forty years ago the treatment of cancer of the cervix was just emerging from the stage of mistaken hope in the effectiveness of ordinary hysterectomy. A few years previously the brilliant success of surgery in other gynecologic conditions had raised high hopes for the cure of this dread disease by the removal of the affected organ. Vaginal or abdominal hysterectomy was the accepted treatment. Large series of patients had been subjected to this supposed radical treatment, with excellent immediate results. But the lapse of time had brought revelations that were disconcerting. A large number of the patients, who had done so well at first, gradually disappeared by death from recurrence of the cancer. Year by year the mounting number of deaths in the early series raised ominous forebodings. Slowly but surely, in spite of reluctance to accept it and stubborn fighting against it, there came finally the realization that hysterectomy as then carried out was not a cure for cancer of the cervix. In one large series of operations, not a single patient survived five years. In other series there were a few survivals, particularly among those in which cautery excision had been employed. The high hopes built on early results had been completely overthrown, and the profession was back where it started with no cure for this disease.

However, this harrowing experience was not without beneficial results. It had been demonstrated definitely that there was some unknown factor in the situation or some known factor that required much more serious study. In the attempts to determine the causes of failure of ordinary hysterectomy as a cure for cancer of the cervix, there developed one of the most brilliant and useful pieces of pathologic work in the history of medicine.

The clear demonstration of minute nonpalpable cancer prolongations beyond the palpable involvement of the cervix and parametrium showed why ordinary hysterectomy did not cure the cancer. Whether the prolongations were by continuity of cell growth or by metastatic transportation of cancer cells to outlying glands, the result was the same; namely, recurrence.

The problem then became clear. Some means must be found to destroy these outlying cancer cells, which were evidently present in practically every case when the patient came under observation. That problem has remained to the present time, and it is exactly the problem we are struggling with today.

In the intervening years this serious problem has been attacked from every conceivable angle. All over the world, workers and institutions and special organizations have labored incessantly to solve it. The time and thought and hard work and ingenuity and funds that have been devoted to this quest constitute a wonderful commentary on the extent and variety of the resources of human endeavor.

The main steps by which treatment of cancer of the cervix advanced from practical failure to the saving of about one fifth of the patients treated, may be briefly stated. It was noticed that the occasional cure following the simple hysterectomy of those early days occurred most frequently when the cautery was used, especially low-heat cautery application. There was evidently something about heat that discouraged the growth of cancer cells and made cautery excision more effective than excision with the cold knife. Cautery incisions even through dense cancer would often heal superficially, the cancer cells evidently being killed more deeply than the tissue cells.

This ray of hope was followed up, and the slow cautery excision of the cervix, with baking of the surrounding tissues, was developed. This cured a certain small percentage of cases, which was a remarkable result considering the limited extent of the excision.

The baking process was soon overshadowed by the developing radical dissection operation. This showed a much better percentage of cures and finally became firmly established as the best treatment for the operable cases. The baking method still survived as treatment for the inoperable cases, the details and extent of the baking varying much with different operators. Attempts were made to extend the baking process far beyond the limits of the affected cervix, so as to devitalize the outlying cancer cells. This did not prove successful, however, for the zone of differential killing effect on cancer cells was entirely too narrow to reach the marginal portions of the growth.

Radium preparations had for some time been tried as a possible source of a devitalizing influence for reaching the distant cancer cells in these inoperable cases. Some isolated successes fired the imagination of persons inside and outside the profession. Then, with the wish as father to the thought, all sorts of claims were made, unwarranted hopes were aroused, and the radium treatment of cancer entered a stage of inflation and later deflation that almost killed it as far as professional confidence was concerned.

However, there was something of real value in it, and that something was cherished and nourished and developed by patient, hopeful workers in various parts of the world, until finally radiation was established as bringing real help in the handling of advanced inoperable cases, and even curing some.

METHOD ADOPTED AT BARNES HOSPITAL

The radical dissection operation, abdominal or vaginal as preferred, still held the field for the operable and borderline cases, radium being employed in the advanced cases. The knowledge concerning radium and the technic of its application developed rapidly and soon reached the point at which improved radium treatment was found more effective than operation in clinical class 2 and borderline cases, as well as in the more advanced. It was about this time that radiation treatment for all cases except the very early ones was adopted at the Barnes Hospital of the Washington University School of Medicine.

The plan adopted was to give the maximum of radiation at the outset of treatment. This consisted in giving as large a dose of the hard rays of radium as the conditions would permit without extending the soft-ray slough into the bladder or rectum, and then adding high voltage roentgen therapy as soon as safe. A clear realization of the necessity of extending the radiation devitalization to the outermost cancer cells was the reason for the maximum dose. This was given at the beginning of treatment because the local conditions will then permit of the really maximum dose, whereas later, after radium contraction of the tissues has drawn in the bladder and rectum, not nearly so large a dose can be given. Also, at the beginning of treatment the cancer cells have not yet developed the radium immunity which appears later.

Ever since radiation became an important factor in the treatment of carcinoma of the cervix, there have been marked differences of opinion as to what constituted the most effective method of application. There

was a great variety of pronouncements and arguments and counterarguments and contradictions, and also frequent changes of treatment. Popularity of method as indicated by discussions at important medical meetings varied back and forth—between small doses and large doses of radium, between the plan of one massive attack at the beginning or many small attacks distributed over a long period, and between the supplementary use of x-rays or no x-rays.

Amid all this variety of opinion and changing of methods, my associates and I held for ten years to the one plan of a massive attack at the beginning of treatment. There were three reasons for holding to this long period of uniform treatment: 1. The plan was adopted only after careful study of the whole situation, including personal contact with pioneer radium work in the East and the seizure of every opportunity to obtain reliable information. 2. With this disease, several years of trial are required to determine the real curative value of a plan of treatment. 3. Careful study of the other plans proposed from time to time convinced us that they did not offer any better, if as good, chance of cure as the plan we were using.

Results and lessons from our experience with this plan were published last year in a statistical article,[1] which contains an analysis of the series of cases in which more than five years had elapsed since treatment, together with details of the treatment employed and conclusions from this first five-year series and from the subsequent five years of work.

Having thus steadily held to this plan of treatment, it has been very gratifying to myself and my associates to see the general swing in leading institutions in recent years to the massive attack at the beginning, either as a single large dose or as several applications within a few weeks, which amounts to the same thing; because of the slow effect of radium, all applications within six weeks are counted in the aggregate as one dose.

Intensive study and experimentation in various directions are going on constantly in many well equipped institutions with the object of increasing the effectiveness of radiation in the region of the outlying cancer cells, and thus of increasing the percentage of cures.

Probably the most promising accomplishment in this direction is the increasing effectiveness of the supplementary high voltage roentgen treatment. At first roentgen treatment was of doubtful value, but the development of machines and tubes for high voltage x-rays (up to 200,000) has made it much more dependable for the devitalization of cancer cells. It is hoped that the radical developments now progressing in regard to tubes for higher voltages will result in still more effective roentgen therapy.

Another line of endeavor is that of placing radium directly in the area of the marginal cancer cells; that is, far out against the pelvic wall. The most promising method of doing this, in cases suitable for vaginal hysterectomy, is to carry out the radical vaginal hysterectomy and through the vaginal wound place the radium in rubber tubing against the pelvic wall with the tubes extending into the vagina. This method has been tried in a sufficient number of cases and over a sufficient period of time to demonstrate results that mark it as of definite value in certain selected cases.[2]

Efforts are being made also to supplement intensive radiation from the cervix by placing improved radon seeds in the outlying cancer areas through an abdominal incision. The first attempts in this direction, with radium tubes and the older forms of emanation seeds, proved impracticable. Later improved radon seeds eliminated some of the dangers, and the method is being given a rather extensive trial. Some prefer to enucleate palpable glands at the pelvic wall before placing the seeds, while others simply insert them into the affected areas. At present, not sufficient time has elapsed to judge of the curative value of this abdominal procedure. In a recent oral report of about thirty cases the results were not very encouraging from the standpoint of stopping the growth. Also, there were two deaths in the hospital not due to the cancer, a mortality of 6 per cent. Of course, the question of incidental deaths not due to the operation, of possible improvements in materials and technic, and of care in the selection of cases, must all be considered in judging the method. With the increased effectiveness of high voltage roentgen therapy, that seems at present to offer a better chance of devitalization of the scattered cancer cells in the periphery of the pelvis, and with less danger to the patient.

Heat generated in the tissues by electricity, in the form of diathermy and electrical coagulation, is being experimented with as a possible means of devitalizing cancer cells throughout the pelvis. Work in this direction has not been carried on long enough to judge of the curative value of the methods now being employed or of the possibilities as to improvement in principles and in details of application.

There are also various modifications of technic in the placing of the radium in and about the cervix, with the object of increasing the dose or of giving a better distribution of the devitalizing influence.

All this work is being watched with great interest, for every one responsible for the treatment of patients with cancer of the cervix is anxious to adopt promptly any adequately tested measure that can be really depended on to increase the chance of cure.

RESULTS

Though the treatment of patients with cancer of the cervix brings many disappointments, it also brings deep satisfaction. One of the greatest satisfactions I have from my years of labor in the field of gynecology is that due to the living results attained by the hard work and anxious study and grave responsibilities assumed in the treatment of this dreaded disease. This pleasure is not so much due to any particular percentage of survivals as to the heartening contact at my office and elsewhere with individuals who years ago had extensive cancer of the cervix advancing toward certain death but who today are well with the prospect of a long life.

It is encouraging to know what extensive involvement has yielded to this plan of intensive irradiation. A glance through the records of our patients who at the time of the analysis last year were still living from five to nine years after treatment for carcinoma of the cervix shows the following primary notes in certain extensive cases that I myself examined and treated:

Mrs. B., aged 43, March, 1922. Cervix destroyed and vaginal wall involved, vaginal vault occupied by a papillary mass, parametrium infiltrated to the pelvic wall on both sides. (This patient, by the way, was in my office for check-up examination only three weeks ago, more than ten years after treatment. She was in good health and with no evidence of cancer.)

1. Crossen, H. S.: Conclusions from a Study of Five-Year Cures in a Series of 121 Cases of Carcinoma of the Cervix Uteri, Am. J. Obst. & Gynec. **22**: 559 (Oct.) 1931.

2. A description of this method may be found in the recent article by L. Adler entitled "The Treatment of Carcinoma of the Cervix by Vaginal Hysterectomy and Radium," Am. J. Obst. & Gynec. **23**: 332 (March) 1932.

Mrs. V., aged 36, April, 1922. Large mass filling center of pelvis, parametrium infiltrated to pelvic wall, cervix partly destroyed.

Mrs. W., aged 38, April, 1922. Cervix enlarged to size of orange, central bleeding cavity, parametrial infiltration on each side, bladder and rectum not involved, patient exsanguinated from the bleeding. (This patient did not get roentgen treatment. She received 5,000 milligram hours of radium. Later she was in the hospital for roentgen treatment but became dissatisfied and left and never returned. She was lost sight of for a long time and was later found under another name, as she had remarried. A note from her in reply to a letter in February, 1931, stated: "I am proud to say I have not had any recurrence of my trouble, and have not been under any doctor's care.")

Mrs. A., aged 45, September, 1922. Cervix extensively involved, parametrial infiltration fixing cervix, most marked on left side, apparently no involvement of rectum or bladder.

Mrs. G., aged 50, September, 1922. Entire cervix involved, parametrium infiltrated on left side to pelvic wall, some involvement of vagina on left side.

Mrs. R., aged 28, February, 1923. Cervix enlarged two times by cancer, some infiltration of parametrium and conditions not suitable for operation.

Mrs. N., aged 43, August, 1923. Cervix destroyed, parametrium infiltrated to pelvic wall fixing structures, some involvement of anterior vaginal wall, rectum not involved.

Mrs. M., aged 59, November, 1924. Cervix nodular and partly destroyed, parametrium infiltrated, especially on the left side. For several years patient has worn a cup and belt pessary for prolapse.

Mrs. T., aged 47, March, 1925. Cervix destroyed, bleeding mass at vaginal vault surrounded by infiltration extending to pelvic wall, all structures fixed, extensive involvement of anterior vaginal wall.

Mrs. H., aged 38, September, 1925. Cervix largely destroyed, extensive parametrial infiltration to pelvic wall causing fixation, anterior vaginal wall involved.

Mrs. G., aged 37, January, 1926. Cervix greatly enlarged by an extensive carcinoma, parametrial infiltration to pelvic wall on both sides.

The plan of treatment for these patients was, as stated before, to give as large a dose of the hard rays of radium as the conditions would permit without extending the soft-ray slough into the bladder or rectum, and then follow this at a selected time with high voltage roentgen therapy. All these patients were living and without evidence of recurrence at the last report.

In each case the diagnosis of carcinoma of the cervix was confirmed by microscopic examination of removed tissue. These were not early cases but advanced ones. As is evident from the primary examination notes, most of them had extensive parametrial involvement with fixation to the pelvic wall. The cases were practically hopeless from the operative standpoint, and yet with intensive radiation treatment the patients are living at the end of five to ten years, and free from cancer.

Such results certainly give a solid foundation for encouragement in this great struggle.

Operations on Autonomic Nervous System.—A study of the various operations on the autonomic nervous system brings out at once the thought they are, almost without exception, destructive in character. Langley, it is true, attempted anastomosis as part of his researches and, more recently, Sir Charles Ballance has described the experimental anastomosis of the cervical sympathetic cord with the facial and hypoglossal nerves. Beyond these there does not appear to have been any attempt at constructive surgery but the possibilities of this must be borne in mind in future work. One cannot avoid the thought that sympathectomy is a crude and mutilating operation.—Telford, E. D.: The Present Position of Sympathectomy, *Lancet* **2**:771 (Oct. 8) 1932.

RELATION OF "CHRONIC MASTITIS," CYSTS AND PAPILLOMAS TO CANCER OF THE BREAST

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The mammary gland constitutes a peculiarly suitable field for clinical and pathologic investigation of the cancer process not only because of the vast surgical pathologic material it affords, but more especially because of the opportunity to study the physiology of the gland in its relation to tumor formation. It is my special purpose to present the available evidence on the relation between "chronic mastitis," cysts and papillomas to cancer of the breast.

PHYSIOLOGIC CONSIDERATIONS

The morphologic appearances of breasts at birth, puberty, lactation and pregnancy possess important bearings on the conception of certain pathologic states. Studies of breasts at birth show that the development of the breast is not always complete at the end of nine months of fetal life and that the appearances of breasts vary enormously in different male and female infants. Hyperplasia of the epithelium and of the pericanalicular and periacinous connective tissue and lymphocytic infiltration are common microscopic observations. Their presence is more indicative of a physiologic process than of a pathologic state.

Between birth and puberty the breast is in a state of quiescence. At puberty new ducts and acini are formed, and the breast becomes correspondingly enlarged. Fibroadenomas occasionally form, consisting of an enormous increase in the pericanalicular and periacinous connective tissue.

At every menstrual period the mammary glands are stimulated by circulating hormones resulting in a transitory swelling of the breasts. In many women the changes in the breast associated with menstruation pass unnoticed; in others pain and tenderness are more marked and frequently give rise to considerable mental anxiety and some physical distress. The cyclic changes that occur in the normal breast associated with menstruation are dependent on the action of the corpus luteum, which in turn is governed by the action of the anterior lobe of the pituitary gland.

During pregnancy the tissue elements of the breast undergo a marked degree of hypertrophy. The source and nature of the impulse that results in the remarkable changes in the breasts under the influence of pregnancy have been the subject of extensive investigation and considerable controversy. The secretion of a milky fluid from the breasts independent of pregnancy is a well recognized phenomenon. It may occur in women who have already borne children as well as in women who were never pregnant. It has been observed in women soon after marriage. It has been found in association with cystic disease of one or both ovaries with myomas of the uterus and in tabes. Examples of virginal lactation are numerous, and many such cases are recorded in the literature. Von Pfaundler[1] noted that among the natives of Cape Verdes it is

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1. Von Pfaundler, M.: Milchdrüsen, Lactation, Handbuch der normalen und pathologischen Physiologie, Berlin, Julius Springer, 1926, vol. 14, p. 609.

customary, if an infant's mother dies, to put the child to the breast of the nearest relative whether she is young or old, pregnant or virgin, or in the menopause, and within a few days a sufficient production of milk is said to result. A similar phenomenon has been observed by farmers in cows, goats, horses and dogs. Virgin female calves suckled by their stallmates or systematically milked have developed milk secretion.

After pregnancy the breast again resumes a state of rest, but it never completely returns to the normal appearances seen between puberty and the first lactation. Those breasts that have undergone incomplete involution are in a state of activity when they should be at rest. Epithelial and connective tissue hyperplasia and lymphocytic infiltration are found, and the condition is sometimes erroneously termed "chronic mastitis." It is present in more or less degree in every breast that has undergone lactation. The condition is more physiologic than pathologic.

CHRONIC MASTITIS

The terms "chronic mastitis" and "chronic cystic mastitis" as they are commonly used in the literature include under their descriptions a variety of conditions, some physiologic and innocent, others distinctly pathologic and of great menace. Failure to separate these different states has led to great confusion in efforts to establish their relationship to cancer of the breast. These conditions (mazoplasia, cysts, papillomas, Schimmelbusch's disease) differ from each other in their etiology, prognosis and treatment. It is therefore of basic importance to separate them. Those states of the breast which appear more physiologic than pathologic have been isolated and described under the term "mazoplasia" (Cheatle[2]). The term mazoplasia is substituted for "chronic mastitis" because the latter term implies that inflammation plays an important part in the origin of the disease. In fact, inflammation is not a characteristic feature of the process.

MAZOPLASIA ("CHRONIC MASTITIS")

Mazoplasia is characterized by a hyperplasia of the pericanalicular and periacinous connective tissue, new formation of ducts and acini and a desquamation of epithelial cells in the terminal ducts and their acini. The ducts and acini become distended by the shed epithelial cells giving rise to diffuse pain and a generalized nodularity ("lumpy breast"). It is important to note that the biologic activity of the epithelial cells ends in this form of desquamation and does not lead to the formation of cysts, papillomas or carcinomas.

The condition that has been termed mazoplasia is almost universally present in some degree until the menopause in normal breasts of all women who have borne children. The condition is also present during development and in the breasts of male and female infants at birth. It is present at puberty and pregnancy and during lactation. It is a physiologic rather than a pathologic process.

Careful search has failed to reveal microscopic indication of a transformation of the desquamative epithelial hyperplasia of mazoplasia into epithelial neoplasia (papilloma or carcinoma), and the epithelial proliferation does not lead to the formation of cysts.

Clinical Signs of Mazoplasia.—Mazoplasia is most common between the ages of 30 and 40 years. The most obstinate examples occur in married women, although it may be severe in younger women. It is absent between birth and puberty and ceases with the menopause. It is most marked in women who have borne children.

The outstanding symptom is a diffuse aching pain over the whole area of one or both breasts, generally more marked on one side than on the other. The pain is often worse at menstruation. The advent of pregnancy may stop all symptoms. Women suffering from mazoplasia often show evidence of ovarian hypofunction. The menstrual periods are frequently of short duration, and the menstrual flow is usually scanty.

There is no interference with the normal contour of the breast. When there is little or no subcutaneous fat, careful palpation can detect a diffuse fine nodularity. The gland feels more solid than normal.

The possibility is admitted that stagnant contents may act as an irritant which might transform the state of mazoplasia into papilloma or carcinoma, although careful search has failed to show evidence of this transformation. There is no evidence, therefore, of any relation between mazoplasia and cancer of the breast. The evidence seems to indicate that the stimulus that causes mazoplasia may be physiologic and incapable of changing the desquamative into the neoplastic state. The prognosis of mazoplasia is therefore good.

In the generally accepted use of the term "chronic mastitis" are included mazoplasia, cysts and papillomas. All these states are grouped together in a haphazard manner as possessing a possible etiologic relationship to carcinoma. Confusion has been caused by including the separate conditions of cysts and papillomas, respectively, in the same category as mazoplasia. It is generally agreed that microscopic cysts and papillomas can be in direct etiologic association with carcinoma. If the term "chronic mastitis" is limited to the process described as mazoplasia, then there is no demonstrable relationship between "chronic mastitis" and carcinoma of the breast.

The treatment of mazoplasia presents a difficult problem. The chief reason for this difficulty is that the condition is a local expression of a systemic dyscrasia. Local treatment is of little benefit. Diathermy or roentgen therapy sometimes results in temporary relief, but in general these agents have proved of little value. Administration of ovarian residue has resulted in the relief of pain in some cases, especially in women showing evidence of ovarian hypofunction.

CYSTIC DISEASE OF THE BREAST

The first description of cystic disease of the breast is credited to Sir Astley Cooper[3] and to Velpeau.[4] These observations were followed by a remarkably complete description of the clinical aspects and gross pathology of the disease by Sir Benjamin Brodie[5] (1846). To Reclus[6] (1883) belongs the credit of having pointed out that cystic disease of the breast is a typical and not infrequent condition. He also emphasized the multiplicity of the cysts, their generalized distribution and the simultaneous or consecutive bilateral involvement of the breasts.

Under the assumption that an inflammatory process is the underlying cause of cystic disease of the breast,

2. Cheatle, G. L.: "Chronic Mastitis," "Cysto-Adenoma" and Adenoma of the Breast, Arch. Surg. **17**: 535 (Oct.) 1928; Cysts, and Primary Cancer of the Breast, Brit. J. Surg. **8**: 149 (Oct.) 1920; Pre-Cancerous Conditions of the Breast, Cancer Rev. **5**: 81, 1930.

3. Cooper, A. P.: The Anatomy and Diseases of the Breast, Philadelphia, Lea & Blanchard, 1845.

4. Velpeau, A.: Traité des maladies du sein, Paris, 1838; translated by W. Marsden, London, H. Renshaw, 1856.

5. Brodie, B. C.: Lectures Illustrative of Various Subjects in Pathology and Surgery, London, Longmans [and others], 1846.

6. Reclus, P.: La maladie kystique des mamalles, Bull. Soc. anat. de Paris **58**: 428, 1883.

Billroth,[7] König [8] and Delbet [9] referred to the condition as "chronic cystic mastitis." The evidence against the connection of this disease with inflammation is no longer disputed, and most authorities agree that the conception that is conveyed by the term "chronic cystic mastitis" is inaccurate and misleading and should be abandoned.

The consequences of cyst formation are (1) stagnation of contents and (2) the supervention of a neoplastic process (papilloma, carcinoma). On the formation of a cyst there is stagnation of its contents, and it is conceivable that among these contents may be irritants that continue their action undisturbed over long periods. As long as the epithelium remains active it is possible that the continued action of this irritant might be an important factor in inducing the change from the innocent desquamative to the more serious neoplastic state. The fact that benign and malignant tumors do not always occur in situations in which there is stagnation plainly indicates that there must be other factors in addition to stagnation.

RELATION BETWEEN CYSTS AND PAPILLOMAS

A basic difference exists between the desquamative and neoplastic processes. The desquamative process leads to the formation of cells which are incapable of further existence. The neoplastic process gives rise to a progeny of cells which are viable. They are capable of separate individual existence and of reproducing other epithelial cells. Directly a state of neoplasia has supervened, tumor formation has begun, and a breast exhibiting this change at once assumes a more menacing character.

The epithelium in the microscopic cysts is active and is more likely to become neoplastic than the degenerated epithelium that lines the larger cysts. Once a cyst has become large, it can be considered, with certain rare exceptions, as immune to neoplastic change. The development of papilloma and carcinoma occurs, therefore, as a rule, in the small microscopic cysts and not in the large ones.

When the papillomatous process complicates the cystic state the area of distribution occupied by the papillomas is in the same ducts and acini which are affected by the cystic state and in them only. The change from the cystic to the papillomatous state can be seen in all stages of transformation. Cystic disease of the breast begins in the late twenty and early thirty years of life. Papillomas make their appearance most commonly in the late thirty and early forty years of life.

RELATION BETWEEN CYSTS AND CARCINOMA

Examination of whole serial sections of breasts according to Sir Lenthal Cheatle's technic shows that when carcinoma complicates cystic disease of the breast, the cystic changes, the papillomas, and the carcinomas originate in the same duct units of the breast and are confined to these areas. Thus it would appear that there is a sequence of three events: (1) cystic disease, (2) papilloma and (3) carcinoma. The fact that the area of occupation is the same in the two latter states as in that of the cystic state shows as conclusively as morphologic appearances can show that these pathologic changes are in some way dependent on each other and that there is a sequence of events that begins with the cystic state and ends in carcinoma.

7. Billroth, T.: Die Krankheiten der weiblichen Brustdrüsen, Deutsche Chirurgie, 1880, no. 41.
8. König: Mastitis chronica cystica, Zentralbl. f. Chir. **20**: 49, 1893.
9. Delbet, P.: Maladie kystique et mammite chronique: cirrhose épithéliale de la mamelle, Bull. Soc. anat. de Paris **68**: 2, 1893.

At least 20 per cent of all carcinomas of the breast can be directly traced to this method of origin. In the remaining 80 per cent preliminary cystic changes cannot be demonstrated. It is possible that the inability to demonstrate this is due to the fact that a preliminary cystic state was of short duration or that the neoplastic disease had become so advanced as to obliterate all evidence of a preexisting cystic disease. It is also possible that the 80 per cent of all carcinomas that arise in the breast in which no signs of a preexisting cystic lesion is demonstrable are to be explained by a different mode of origin.

Large cysts are as a rule not dangerous because the epithelium that lines them is so degenerated that it is not capable of responding to the stimuli that induce neoplasia. Certain cautions are necessary in this respect. Clinically, it is not always possible to be certain that a large cyst does not contain carcinoma. A multicystic breast in which only one cyst is clinically palpable often contains small microscopic cysts as well, and these may be the site of carcinoma which has begun in the cysts and passed through the papillomatous stage. Carcinoma can also arise in a large cyst in the undegenerated epithelium of a small duct that communicates directly with the cyst (Cheatle [2]).

It is impossible to determine the prognosis of small microscopic cysts. Carcinoma arises by this method in 20 per cent of all cases of carcinoma of the breast. The percentage of cases of cystic disease that eventually end in carcinoma is at present impossible to determine. In estimating the prognosis of cystic breasts it is important to consider numerous facts:

1. When cystic disease progresses it passes into the neoplastic state (papillomas), and this state in turn may pass into the carcinomatous state.

2. There is no clinical evidence to indicate these transitions.

3. The sequence of events may cease at any point.

4. When carcinoma develops it generally appears twenty-five or thirty years after the incidence of the cystic stage.

Cheatle has called attention to the following important sequence. Cystic disease begins in the late twenty and early thirty years of life. Papillomas make their appearance in the lesion during the late thirty and early forty years of life, and carcinoma appears in the lesion in the late forty and early fifty years of life.

The clinical detection of a palpable cyst in the breast can be regarded as evidence that many small cysts are in the process of formation in its neighborhood. When a large cyst is situated deeply in the breast its cystic state may be difficult to determine, especially if the breast is fat. If the cyst contains clear fluid, it will transilluminate clearly. When a superimposed inflammation causes adherence of the skin overlying a deep-seated cyst, the clinical picture cannot be distinguished from carcinoma. In these examples transillumination is of considerable help in establishing the diagnosis.

A localized collection of small cysts occurring in a duct and its branches gives rise to a localized nodularity. When the cystic state remains uncomplicated by papilloma and carcinoma, there is a tendency for one cyst to outgrow the others. A single cyst thus becomes palpable and dominates the clinical picture. An apparently single cyst rarely contains carcinoma. When papilloma and carcinoma complicate the purely cystic state, there is not the same tendency for the development of a large cyst, and the clinical condition

remains one of local nodularity. Thus local nodularity is a clinical sign of great importance because it usually signifies that the pathologic process has extended beyond the purely cystic stage and that the condition is either localized Schimmelbusch's disease or actually early carcinoma.

After one has determined by transillumination that the tumor is a cyst containing clear fluid, the line of procedure is clarified. The safest method to adopt is to perform a wide excision of that portion of the breast containing the cyst. A wide excision is advised on the basis that this procedure is more likely curative than a narrow removal. After removal the wall of the cyst should be carefully inspected and any suspicious part examined by means of the frozen section.

When the cystic state is generalized, it is wiser to remove the whole gland rather than adopt local measures which necessitate repeated operations on cysts as they become newly formed.

PAPILLOMA OF THE BREAST

A single papilloma or multiple papillomas may remain benign for many years and grow to massive proportions. In this respect they resemble papillomas affecting other organs of the body (bladder, colon). It has been pointed out that the formation of papillomas is part of a process that begins in the cystic state and may finally culminate in carcinoma. The prognosis of multiple papillomas in the breast should be regarded as bad. The prognosis of an apparently single papilloma should also indicate a bad prognosis, because unless whole sections of the breast have been examined microscopically, it is impossible to exclude the presence of multiple lesions.

The chief clinical sign of papilloma of the breast is a hemorrhagic or serohemorrhagic discharge from the nipple. A most marked difference of opinion exists in the literature concerning the prognosis and treatment of this clinical sign.

When breasts are examined by means of whole serial microscopic sections, it is found that papillomas are often discovered when their presence is least suspected. This method also reveals that they are more commonly multiple than is generally supposed. To infer that only one papilloma exists in a breast that has been only partly examined is a totally unwarranted assumption. Papillomas are commonly unilateral, but both breasts may be affected.

The average age of patients who come under clinical observation for papilloma of the breast is approximately 40 years. A single papilloma is either painless or gives rise to a feeling of discomfort. In multiple papillomas pain is a more common and prominent symptom and is probably due to the distention of one or more duct units by the neoplastic process.

A hemorrhagic discharge from the nipple is most commonly due to one or more benign papillomas of the duct. More rarely this sign is due to a beginning carcinoma. I have seen several examples of the latter condition in which early microscopic carcinomas of the duct were demonstrated but which gave no palpable evidence of their presence.

Palpation may reveal the presence of a tumor. When the tumor can be felt it is usually situated in the ampullary region and is firm, elastic and movable. It lacks the firmness of carcinoma, and in the absence of inflammation the skin is freely movable over it.

Palpation of the breast may fail to detect the presence of a tumor, and a hemorrhagic discharge from the nipple may exist without palpable evidence of disease. Since women are consulting their physicians for abnormal signs promptly after their discovery, examples in which a bloody discharge from the nipple is unaccompanied by a palpable tumor in the breast are constantly increasing, and the management of this group of cases presents a definite problem.

In 1929, I demonstrated that transillumination reveals the presence, position and multiplicity of papillomas of the breast. Minute papillomas do not cast shadows. In searching for small lesions it is important to reduce the intensity of the light to a minimum. The test should always be made in a room that is absolutely dark. Under these circumstances it is often possible to detect a faint linear shadow in the region of the ampulla which represents a duct containing one or more papillomatous growths.

After localizing the lesion by transillumination the skin overlying the shadow should be marked with indelible ink or silver nitrate while the patient is in a lying position. These preliminary studies greatly facilitate the surgical procedure and insure more certain removal of the diseased parts when a local excision is contemplated.

When a hemorrhagic discharge from the nipple is accompanied by a large tumor occupying a main portion of the breast, especially of its central parts, local mastectomy is the correct treatment. When the tumor is small and its nature is in great doubt, wide local exploratory operation followed by microscopic examination of a frozen section is indicated. This conservative procedure may prove to be adequate, especially if transillumination reveals a single shadow in one breast. When transillumination reveals multiple shadows a local mastectomy is the method of choice. Subsequent examination of the breast by means of whole serial sections is made to determine the necessity for further surgical or radiotherapeutic measures.

SCHIMMELBUSCH'S DISEASE

The disease of the breast which Schimmelbusch[10] described and which now bears his name presents the following pathologic characteristics: multiple cysts on which the papillomatous process has supervened, in which the epithelial neoplasia, although atypical, is still confined within the normal boundaries of ducts and acini. Cysts and papillomas therefore constitute the essential pathologic features of the disease. The clinical signs are not distinctive. Localized nodularity is the outstanding sign; a hemorrhagic discharge from the nipple may be present. The so-called "shotty breast" is described as clinically characteristic, although uncomplicated cystic disease may present a similar clinical picture. A differential diagnosis between cystic disease, Schimmelbusch's disease and early carcinoma is actually difficult and often impossible clinically.

Beginning as an epithelial hyperplasia, the process may end in the cystic state. If the process continues, papillomas form within the cysts and Schimmelbusch's disease is the result. The process may stop at this stage, but if it continues, carcinoma is the inevitable consequence. The proportion of cases in which cystic disease and Schimmelbusch's disease end in carcinoma is impossible to estimate.

These facts render Schimmelbusch's disease a lesion of serious menace to the patient. The clinical sign most commonly associated with Schimmelbusch's dis-

10. Schimmelbusch, C.: Das Cystadenom der Mamma, Arch. f. klin. Chir. 44: 117, 1892.

ease is a localized nodularity. This sign is always an indication for an exploratory operation. A wide excision of the segment of the breast harboring a localized nodularity should be followed by immediate examination of the suspected area by means of frozen sections and of paraffin sections. If examination of the frozen sections reveals carcinoma, the radical operation should be performed at once unless there are contraindications to this procedure. When examination of the frozen sections shows all stages of Schimmelbusch's disease but no signs of carcinoma, the presence of malignant disease cannot be ruled out until whole paraffin sections of the excised specimen have been carefully examined. Any further operative or radiotherapeutic procedure should then await the results of the latter examination.

The doctrine that Schimmelbusch's disease is an innocent lesion is unsound and dangerous. The conclusion is based on statistical evidence that is fallacious. The fallacy is due to the fact that the terms "chronic mastitis" and Schimmelbusch's disease have included conditions that are innocent as well as those that are fraught with the greatest danger. The relative proportion of these separate states is not recorded in these statistical studies. Numerous examples in which local excisions in Schimmelbusch's disease have been followed by the development of carcinoma in the breast confirm pathologic and experimental evidence of the potential danger of this lesion. The treatment of this condition should be guided by these considerations.

ABSTRACT OF DISCUSSION

DR. IRA H. LOCKWOOD, Kansas City, Mo.: Any breast may be the seat of cystic transformation incidental to the growth of a neoplasm. The serious import lies not in the cyst but in the character of the tumor. The cyst may become so large as to obscure the tumor itself, or a papillary growth may develop and so fill the cavity that it simulates a solid tumor. Cysts may occur in any part of the breast, as the result of obstruction and dilatation of the ducts or from excessive epithelial hyperplasia. Usually there is no retraction of the nipple or dimpling of the skin. Large cysts of the blue dome type are most common in the presence of evident cystigerous desquamative epithelial hyperplasia. The presence of cysts is often not suspected; when deep in the substance of the breast, they may simulate solid tumors. Dr. Cutler stated that the clinically palpable cyst was rarely dangerous. This is true in the single cyst, but in a breast in the cystigerous state small multiple cysts occur throughout the gland and it is these small cysts that often become malignant. Any breast the site of cystigerous changes is potentially dangerous.

DR. CHARLES F. GESCHICKTER, Baltimore: Dr. Cutler is convinced that chronic cystic mastitis, Schimmelbusch's disease, papillomas of the breast and cancer may coexist, in a relationship. I agree that Schimmelbusch's disease and cancer will coexist and that they are related, but I wish to discuss the way in which they are related. I do not agree that Schimmelbusch disease is always potentially cancerous. No matter what organ may be under discussion, there are always three possibilities for tumor formation: There is a possibility of (1) a benign tumor, which may exist throughout life as such, (2) a primary malignant tumor, and (3) leukoplasia and papilloma of the lip, which may remain benign. On the other hand, one may have carcinoma arising in benign papilloma. In the breast, both benign tumors, in the form of papillomas, and scirrhous carcinoma, which is primarily malignant, are frequent as independent diseases without any interrelationship. In a much smaller group, cancer may occur at the site of a papilloma. What, then, is the relationship between the benign and the malignant tumor? In my opinion the benign tumor always springs from an undifferentiated tissue. Undifferentiated tissue may later in life give rise not only to the same tumor that it had in previous years, such as the benign papilloma, but also to a malignant tumor. In such a case they have a common origin but represent two distinct processes. I believe this is a fundamental law that holds true in all tumor pathology. There are benign tumors arising in an undifferentiated group of cells, primarily malignant tumors that can arise from the same cell group, and finally a group of malignant tumors arising later in life after the benign tumor has occurred. The question of practical importance is How often is a benign tumor the seat of the malignant tumor? And what shall be done about it clinically? Should wholesale excision of every benign exostosis of the bone be advised because it is known that in about 5 per cent of the cases they may also be the seat of secondary sarcoma? I believe not. I believe a physician can tell those groups of tumors in which the malignancy is prone to be associated. They are the type that are larger and more definite tumors. In the breast, as in bone, I believe that they occur in less than 10 per cent of the cases. Regardless of the pathologic interpretation, this is what is borne out by the statistics. In 2,000 malignant tumors of the breast, the percentage arising in benign tumors is very small. On the other hand, taking such a series as Dr. Bloodgood's, consisting of 1,300 benign tumors which have never been operated on, and following them over five or ten year periods, one will find that in these benign tumors existing for as long as thirty years the percentage of malignant change is very small.

DR. WILLIAM H. HARRIS, New Orleans: The examination of these conditions should be done in extenso, because a mistake may occasionally be made in the particular portion that is finally selected. The question of differentiation of certain particular details bordering on malignancy occupies an uncertain and a continued debatable category. It can be summarized by stating that those which savor of any suggestion of potential malignancy should be considered in that particular light.

DR. MAX CUTLER, Chicago: In reply to Dr. Geschickter's discussion, I was careful to state that, when the epithelial hyperplasia reaches the stage of Schimmelbusch's disease, carcinoma does not necessarily follow. In fact, one of three events may occur: The process may regress, it may remain stationary for many years, or the epithelial change may continue. In the latter event, carcinoma is the inevitable consequence. Unfortunately, the passage of Schimmelbusch's disease into carcinoma is not accompanied by demonstrable clinical signs and there is no known method of predicting which of the three courses the lesion will pursue. When Schimmelbusch's disease is localized to one area in one breast, a clinical determination of whether the epithelium is still confined within the ducts and acini or has transgressed its normal boundaries is impossible. The mere fact that the epithelial cells have not yet transgressed their normal boundaries, or that they may even regress, does not alter the position that the lesion must be widely excised and its state determined microscopically. The proportion of Schimmelbusch's disease that culminates in carcinoma has not been determined. My material indicates that at least 20 per cent of carcinomas give evidence of having passed through the stage of Schimmelbusch's disease. It has not been possible to determine the mode of origin of the remaining 80 per cent of carcinomas of the breast. The position that Schimmelbusch's disease of the breast is not a dangerous lesion is based on evidence which I consider fallacious. The argument is advanced that a large number of patients with Schimmelbusch's disease observed over a period of many years have shown an incidence of carcinoma no greater than the incidence in a control series. There are two criticisms of this observation: First, the composition of a large series of cases diagnosed clinically is impossible to determine. A clinical diagnosis of Schimmelbusch's disease of the breast is accompanied by a considerable element of error and a large proportion of such patients may be suffering from mazoplasia in which a relationship to carcinoma does not exist. Second, unless such a group of patients has been observed for as long as twenty-five or thirty years, it cannot be stated that a proportion of them will not still develop carcinoma because it has been shown clinically and experimentally that the change from benign to malignant neoplasia occupies many years. I

should like to call attention to a second fallacy. It has been stated that when a local excision is performed on a lesion in the breast and from the microscopic structure one is in doubt as to its malignancy, the fact that the patient lives is an indication that the lesion was benign. This position is unsound, because a wide excision of an early carcinoma may be curative. The group of cases in which a wide excision of a localized area in Schimmelbusch's disease has not been followed by cancer, therefore, does not constitute evidence that no relationship exists between the two. My interpretation is that in these cases the lesion might have progressed to carcinoma if it had not been removed. Examples in which local excisions of Schimmelbusch's disease are followed by carcinoma are numerous.

HEAVILY FILTERED HIGH VOLTAGE X-IRRADIATION IN CANCER THERAPY

PROTRACTED TREATMENT

WALTER L. MATTICK, M.D.
BUFFALO

Radiation treatment since its inception has undergone various changes, more especially in the methods of administration.[1] While it may be stated as a truism that there is no one roentgenologic method that gives best results in all cases, nevertheless certain technics have been heralded as more efficacious in the treatment of the more radioresistant types of neoplasms. Thus, shortly after the conception of this type of therapy, massive dosage long held sway. Later, the pendulum swung to fractional or divided dosage where the total radiation administered extended over a period of a week to ten days. More recently a still further modification, a fractionated, heavily filtered x-irradiation, prolonged over a moderately long period of fifteen or more days, commonly known as protracted dosage, is being advocated. At the outset, I wish to state that such treatment, while not universally popular at its present stage of development because of its inherent drawbacks due to time consumed and the expense incident thereto, will eventually, with further progress and perfection of higher voltage x-ray tubes beyond their present experimental phase, bid fair to become the equal of, or even surpass in popularity, its more expensive and equally time-consuming competitor, the teleradium pack.

THEORY OF APPLICATION

Much of the theory underlying this type of radiation emanates from the work of C. Regaud and Ewing, and is generally conceded to be basically sound. It presupposes that cancer cells, like seminal epithelium, are actively multiplying cells which are most vulnerable during the period of mitosis, whereas the normal tissue cells, being less actively growing and not demonstrating such active cell division, are more radioresistant. It is therefore readily conceivable that properly controlled radiation may be made relatively selective in its action on the malignant cell. In this sense, the moderately filtered shorter wavelength and more irritating radiation, especially in massive doses, as originally used, can be classified as essentially caustic in effect, whereas the more heavily filtered radiation through 1 mm. or more thickness of platinum, lead or copper is less so, owing primarily to the shorter wavelength resulting from such filtration. This shorter wavelength radiation is known to be less absorbed by the tissues and therefore less irritating to them, as is readily demonstrated by its less destructive action on skin and mucosa, even in large doses.

With such preliminary theoretical considerations in mind I wish to outline briefly my experiences of the past four years with what may be modestly characterized as short wavelength therapy of this type, previously referred to as protracted radiation, carried on with the usual 200 kilovolt x-ray equipment in which heavy filtration (3 mm. of copper) has been substituted for the usual 0.5 mm. of copper as commonly used in the average routine roentgenotherapy of the present day.

At the outset it is only fair to concede that the most outstanding disadvantages attendant on such treatment are the time consumed and the expense due to wear and tear on apparatus and especially on tubes from the continuous service necessitated by these treatments.

TECHNIC AND CLINICAL EVALUATION

During the past four years approximately 500 such treatments have been administered to 52 patients with various types of malignant growths. Most of these cases were far advanced or of the ordinarily refractory types. In this category are included the following: forty-two patients with cancer of the breast (mostly far advanced), four with cancer of the larynx, four with cancer of the esophagus, one with epithelioma of the oral cavity and one with epithelioma of the cervix (far advanced).

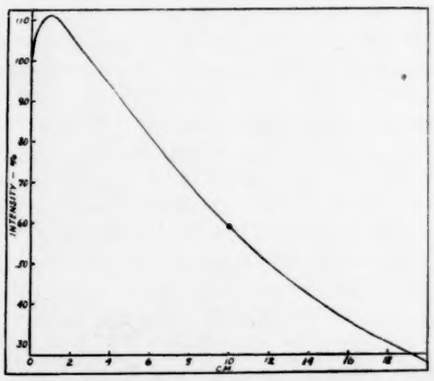

Chart 1.—Curve showing x-ray depth intensities in per cent from 0 to 20 cm. of body tissue thickness in comparison to surface intensity with a 3 mm. copper filter, 200 kilovolts, 80 cm. skin target distance and a 20 by 20 cm. field area.

The first experiments with this type of therapy consisted of daily treatments of from three to four hours' duration through a 0.5 mm. copper filter and 1 ma. with an effective wavelength (λ_{eff}) of 1.6 angstroms on a direct current kenetron rectified equipment of our own make. This type of therapy unfortunately had to be discontinued after two or three months, owing to the fact that such long treatments were destructive to kenetrons then available. Next, a 1 mm. lead filter at 30 ma. and 200 kilovolts mechanical rectification was tried, but after a short trial a change was made to a 3 mm. copper filter, as this seemed to be the material most used in the clinics of continental Europe, especially in the pioneer work of Coutard. At first, these treatments were run at 5 ma., then at 10 ma., and finally as our experience increased and better water-cooled tubes became available the milliamperage was raised

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From the State Institute for the Study of Malignant Diseases; Burton T. Simpson, M.D., Director.
Read before the Section on Radiology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

1. Mattick, Walter L.: Radiation Therapy of Cancer: Basic Principles; Their Application and Results, Radiology **18**: 1070 (June) 1932.

to 30. In so doing it does not seem that any sacrifice of beneficent results has been noticed, thus making it appear that even the time factor for the individual daily treatment was not the absolute essential in this type of therapy. This last adaptation has permitted of the treatment of a greater number of patients daily, while the results seem as favorable as those obtained from

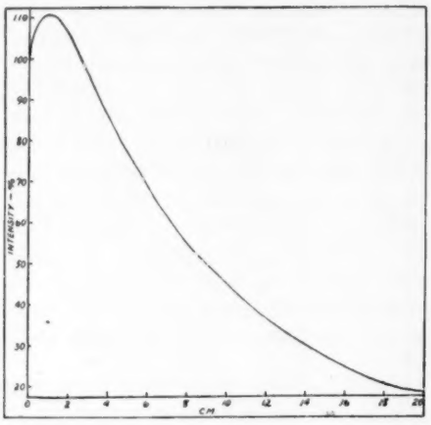

Chart 2.—Depth intensity curve, as in chart 1, computed for 3 mm. copper, 200 kilovolts, 80 cm. skin target distance and a 10 by 15 cm. field area.

the 4 Gm. teleradium pack, with which the daily time of treatment is approximately two or three times as great.

Of the forty-two breast cases, all were treated at 80 cm. skin target distance with one large field 20 by 25 cm. over the breast, axilla and supraclavicular area. Treatments were given daily for fifteen or more days, in which time a total of approximately 2,000 roentgens was delivered from the tube as measured without scattering, or 3,000 roentgens with scattering, before any evidences of epidermitis became apparent. Such treatments, originally extending over three hours daily, have been reduced, as mentioned, to thirty minutes' duration at 30 ma. and 200 kilovolts.

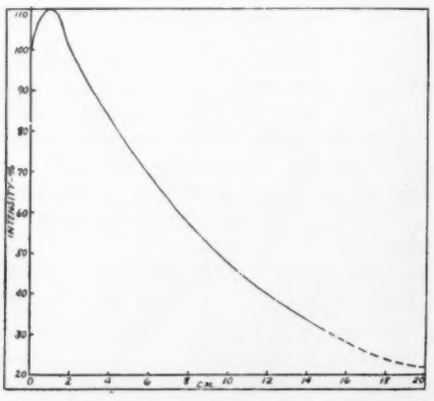

Chart 3.—Depth intensity curve, as in chart 1, computed for 3 mm. copper, 200 kilovolts, 50 cm. skin target distance and a 20 by 20 cm. field area.

Four patients with epithelioma of the larynx have been treated. In all these cases, the treatment was given at 80 cm. or 50 cm. skin target distance over the anterior laryngeal region with a 10 by 15 cm. field. Here also the dose was increased daily until a commencing epidermitis, evidenced by a just perceptible redness, became evident, generally about the fifteenth day, or a beginning epithelial reaction developed in the larynx. Approximately 2,000 or more roentgens, as in the case of carcinoma of the breast, were delivered from the tube.

Next, cross-fire technic was cautiously tried and the reactions were carefully considered, after some preliminary depth dose measurements were first made. In this group are four cases of cancer of the esophagus. Most of these patients had supplemental treatment with radium by a heavy filtration method of protracted dosage from tandem tubes placed in the esophagus, as described elsewhere.[2] Here also, the results have been encouraging. Treatment in these cases has likewise been kept up until an epidermitis developed. This epidermitis, after treatment is discontinued, gradually increases in degree, but never becomes extreme if treatment is carefully watched. Although there may be considerable tanning and the superficial epithelium may desquamate in large flakes, the underlying skin soon regains its normal texture with little or no epilation and with correspondingly little inconvenience to the patient as compared to similar reactions following treatments of the usual 0.5 mm. of copper filtration.

The cross-fire technic used here consisted of six or seven treatments over an alternating anterior and posterior field of 10 by 15 cm. at 80 cm. skin target

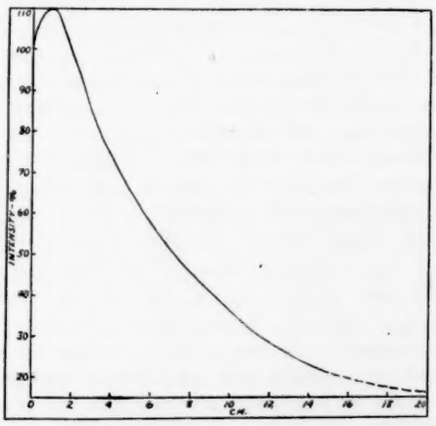

Chart 4.—Depth intensity curve, as in chart 1, computed for 3 mm. copper, 200 kilovolts, 50 cm. skin target distance and a 10 by 15 cm. field area.

distance, given daily for from twelve to fourteen days depending on the skin reaction, as already noted. If after the fourteenth or fifteenth day the skin showed a faint reddening over the area treated, further treatment was discontinued, and after two to three weeks supplemental heavily filtered radium tubes, as mentioned before, were used. The patient with epithelioma of the oral cavity was treated by a cross-fire technic practically similar except for the area treated.

Von Schubert[3] has suggested that only far advanced cases of epithelioma of the female pelvis be given advantage of this treatment because the response by the usual roentgenologic methods is generally sufficient in the earlier cases. In the single case of this type treated, the condition proved too far advanced and the patient too toxic to live through completion of the treatment. Here the cross-fire technic was employed. A field of 20 by 25 cm. over the anterior and posterior pelvis at 80 cm. skin target distance was used.

In evaluating the results thus far attained, I am in full accord with B. F. Schreiner, for many years chief

2. Mattick, Walter L.: Some Additions to Our Radiologic Armamentarium in the Treatment of Esophageal and Laryngeal Cancer, New York State J. Med., to be published.

3. von Schubert, Erich: Ueber Karzinomtherapie mit extrem harten Röntgenstrahlen, Strahlentherapie **42**: 136, 1931.

surgeon at the State Institute, who refers to this heavily filtered shorter wave roentgen and teleradium therapy as the most promising types so far advanced, besides having decided advantages in treatment and producing quite similar results on the malignant conditions in which it has so far been used.

BIOPHYSICAL MEASUREMENTS

When these experiments were commenced, a constant attempt was made to correlate biologic skin dosage with physical measurements. After carefully arriving at this biologic skin tolerance dose, measurements were taken for comparison with the first estimation made entirely by physical methods. Thus the physical dosage measurements were ultimately standardized against the biologic skin tolerance. This forms the basis of the foregoing dosimetry.

TABLE 1.—*Output in Roentgens per Minute at 30 Ma. and 10 Ma. with Both 50 Cm. and 80 Cm. Skin Target Distances*

	50 Cm. Skin Target Distance							
	30 Ma.				10 Ma.			
	0.5 Mm. Copper		3 Mm. Copper		0.5 Mm. Copper		3 Mm. Copper	
Air scatter...	68.2 Roentgens per Min.		18.0 Roentgens per Min.		25.0 Roentgens per Min.		7.0 Roentgens per Min.	
Field, cm.....	10×15	20×25	10×15	20×25	10×15	20×25	10×15	20×25
Wax scatter.	92.8	99.7	24.2	25.8	35.5	38.6	9.26	10.1

	80 Cm. Skin Target Distance							
	30 Ma.				10 Ma.			
	0.5 Mm. Copper		3 Mm. Copper		0.5 Mm. Copper		3 Mm. Copper	
Air scatter...	24.5 Roentgens per Min.		6.7 Roentgens per Min.		9.9 Roentgens per Min.		2.84 Roentgens per Min.	
Field, cm.....	10×15	20×25	10×15	20×25	10×15	20×25	10×15	20×25
Wax scatter.	32.1	32.5	8.2	8.0	11.9		3.05	

This biologic skin tolerance commonly spoken of as an "erythema" has been more appropriately renamed by those working in roentgenotherapy of shorter wavelength and with gamma rays of heavy filtration as an epidermitis when occurring on the skin and as an epithelitis when occurring on the mucosa. The former is characterized by reddening, followed by desquamation in large brownish-red flakes, accompanied by slight or no defluvium and healing with slight subjective inconvenience and a complete restitution of the skin to its normal texture. This reaction commences approximately a fortnight after the beginning of the treatments and lasts another fifteen to twenty days.

On the mucosa such reaction causes a red, glazed appearance. There is a punctate or streaked exudate of fibrin superimposed on this reddened glazed mucosa. This reaction occurs about the same time as the epidermitis and clears up with no permanent damage. Either of these reactions at earliest recognition is a sufficient sign for discontinuance of the irradiation. Such reactions in this type of treatment have been described more in detail by Coutard,[4] Schinz,[5] Bervan [6] and Kahlstorf and Zuppinger,[7] in reporting their experience with these types of radiation. In passing, let it be said that there was observed little or no roentgen sickness, which so commonly is encountered after treatment by longer wave therapy.

Correlating our physical measurements on the foregoing basis, it was found that 2,000 or more roentgens measured without scattering was the approximate amount necessary to produce an epithelitis or epidermitis over fifteen or more days. When scattering was computed, a dosage of 3,000 or more roentgens was required. These figures harmonize fairly well with those given by von Schubert, who found that from 3,000 to 4,000 roentgens gave a good reaction when working at 400 kilovolts through 2 mm. of copper.

A determination of the effective wavelength by the method of Duane showed that we were working at an effective wavelength (λ_{eff}) of 0.115 angstrom when filtering the 200 kilovolt beam through 3 mm. of copper with mechanical rectification, as compared with the usual effective wavelength of 0.16 angstrom unit under the aforementioned conditions with a 0.5 mm. copper filter. Here it is well to remember that the effective wavelength of the gamma ray may be approximately assumed to be 0.01 angstrom, and it is estimated that a voltage of from 1,000,000 to 2,000,000 would have to be impressed on the tube to secure this wavelength roentgenologically.

The output in roentgens per minute at 30 ma. and 10 ma. with both the 80 cm. and 50 cm. skin target distances is given in table 1; also the roentgens as measured with scattering for the various field sizes. It will be noted that von Schubert reported 3.2 roentgens per minute at 400 kilovolts and 66 cm., skin target distance, whereas our apparatus at 200 kilovolts and 80 cm. skin target distance delivered 6.7 roentgens, owing to the greater milliamperage impressed on the tube. It does not seem apparent that this increased speed makes the results of treatment any less efficient. It seems more likely that the total number of days over which these small increments of radiation are delivered is the more important factor. This is well borne out by observing our results when working, as described, at 10 ma. delivering 2.8 per minute, which figure compares favorably with the 3.2 roentgens given by von Schubert and those while working at 30 ma.

TABLE 2.—*Increase in Depth Dosage with 3.0 Mm. Copper Filter*

Depth Dosage						
3.0 Mm. Copper				0.5 Mm. Copper		
Field Area, Cm.	Skin Target Distance 50 Cm.	Skin Target Distance 80 Cm.	200 Kilovolts	Skin Target Distance 80 Cm.	Skin Target Distance 50 Cm.	Field Area, Cm.
10×15	36.5	45.0	Intensity, per cent (10 cm.)	43	34	10×15
20×25	48.0	58.5	(1,300 roentgens, 100%) Massive dose	49	39	20×25

From table 2 it will be apparent that the increase in filter thickness to 3 mm. of copper brought about a perceptible increase in depth dose at 10 cm. below the surface as compared with surface intensity. It will also be noted that increase in field size and consequently back scattering was a great factor in increasing the depth dosage as well as increase in skin target distance up to a certain optimum. Thus it was noted that increase in skin target distance beyond 80 cm. did not give the same relative increase in depth dosage as increases up to 80 cm. We had previously noted this fact in working with lighter filtrations.

4. Coutard, H.: Sur les délais d'apparition et d'évolution des réactions de la peau, et des muqueses de la bouche et du pharynx, provoquées par les rayons X, Compt. rend. Soc. de biol. **86**: 1140, 1922.
5. Schinz, H. R.: Gegenwärtige Methoden der Krebsbestrahlung und ihre Erfolge; Verteilte Dosis, Strahlentherapie **37**: 31, 1930.
6. Bervan, E.: Strahlenanwendung in der Mund, Zahn, Nasen und Augenheilkunde, in Lazarus, Paul: Handbuch der gesamten Strahlenheilkunde, Munich, J. F. Bergmann, 1929, vol. 2, p. 647.
7. Kahlstorf, A., and Zuppinger, A.: Unsere Erfahrungen mit der protrahiert fraktionierten Röntgenbestrahlung nach Coutard, Strahlentherapie **38**: 199, 1930.

Heavily filtered radiation, because of its shorter wavelength, is less absorbable by tissue; hence more can be given before bringing about a reaction in the tissues or before causing damage to the skin.

This fact brings the theory of this method into agreement with some more recent work of Packard and Lauritsen.[8] These writers extended the effect of various wavelengths of roentgen rays on the ova of Drosophila to an effective wavelength (λ_{eff}) of 0.04 angstrom by means of the 550 kilovolt tube installed at the Institute of Technology in California. They reconfirmed the former results of Wood and Packard, i. e., that the same number of roentgens was necessary to produce the same biologic effect on the Drosophila eggs independent of wavelength. Packard and Lauritsen also found that it took approximately 2,750 roentgens to deliver a lethal dose to fragments of mouse sarcoma 180 at an effective wavelength of 0.04 angstrom. This conclusion seems to compare well with our clinical results in which we found that a dose of 3,000 or more roentgens was apparently necessary when measured with scattering to produce a good biologic reaction with the consequent marked tumor response in most of the patients treated.

ABSTRACT OF DISCUSSION

DR. A. U. DESJARDINS, Rochester, Minn.: The method described by Dr. Mattick is of a kind that can be employed only in institutions or by private radiologists who have absolute control of their patients; that is, whose patients can return or who can be kept under conditions in which they can receive their treatments over a sufficient period of time without hardship or difficulty, because such treatment usually involves irradiation for twenty, thirty, forty or more days. In certain resistant varieties of tumor, especially when they are situated deeply within the body, the method has distinct advantage, but it must not be regarded as universally applicable to malignant tumors regardless of their character or situation. Maximum penetration with minimum skin effect is highly desirable in some cases, whereas in other cases maximum absorption in the first few centimeters, regardless of skin effect, is essential for best results. Moreover, not all tumors lying deeply within the body require rays of such extremely short wavelength. I think Dr. Mattick will probably agree with me that a method such as that which he has described should in general be restricted to cases in which the neoplasm is limited to one region; in other words, to cases in which metastasis has not occurred or in which the metastatic elements are not too remote from the primary growth. Another point that might be mentioned relates to reaction of the skin and mucous membranes in the irradiated territory. As Dr. Mattick has implied but perhaps not sufficiently emphasized, no one should attempt to treat patients by this method unless he has the close cooperation of a physicist to measure the dose and of other specialists to watch the effect of the treatment closely from day to day. Otherwise, the attempt must result in frequent and serious mistakes. At the Mayo Clinic we are working under conditions which, thus far, have prevented us from trying the method for two reasons. In the first place, we are working with private patients entirely, and we cannot give them the impression of experimentation unless we have fairly solid grounds beforehand. But the main reason is inadequate facilities and the impossibility at the present time of making the necessary changes. I am satisfied that, so far as certain varieties of tumor are concerned, improvement in results is going to come along the general direction indicated by Dr. Mattick.

DR. JOHN T. MURPHY, Toledo, Ohio: Some physicians early in the use of the big machine using 30 milliamperes had difficulties. It was stated that treatments given so quickly did not have the same effect. It has been my opinion ever since the tube came out that the effects were similar to those of the men who were using the 1, 3 or 4 milliampere tubes. I just want to take this opportunity of thanking Dr. Mattick for his stand on this point.

DR. WALTER L. MATTICK, Buffalo: I agree with what Dr. Desjardins has said about this type of treatment necessarily being limited. It is very limited. It is not a type of treatment that can be universally adopted by any means. One has to consider the four types of treatment now in vogue, the massive dosage technic, the divided dosage technic, the saturation dosage technic, and the protracted dosage technic, each being used in its proper place. If one uses them in improper places it is going to bring disrepute to the radiologist. As to the close cooperation of the physicist, that is absolutely essential. I must say in this particular type of work that, owing to limitation possibly of the measurement apparatus, it was found impossible at first to arrive at a dosage from physical measurements alone. So I had to go ahead, as it were, of the physicist in many cases. The first dosages he gave me I have exceeded by 200 or 300 per cent of the original physical measurements. Later he has correlated his dosages in relation to my biologic reaction. That seems probably to be the more correct solution. As to Dr. Murphy's remark about the use of the high milliamperage versus the low milliamperage, it has been my experience that the high milliamperage saves time and produces just as good results, apparently, as working at low milliamperage. I think that Dr. Lenz bore that out well in his experience with this type of therapy.

8. Packard, Charles, and Lauritsen, C. C.: The Biologic Effects of High Voltage X-Rays, Science **23**: 321 (March 20) 1931.

CYSTINE NEPHROLITHIASIS

GEORGE H. EWELL, M.D.
MADISON, WIS.

Cystine nephrolithiasis is a comparatively rare and exceedingly interesting pathologic finding. It probably occurs more often than is reported, as it is not at all unreasonable to suppose that some of the cases of recurrent renal calculi are of this type, as well as single instances of passed or surgically removed calculi not subjected to chemical analysis.

Simon,[1] in 1900, collected from the literature 103 cases of cystine calculi. In 1912, Link[2] collected 146 cases. In 1925, Seeger and Kearns[3] noted 181 reported cases of cystinuria, 124 of which were complicated with calculus formation. Lewis[4] found seventy-one reported cases of cystinuria from 1921 to 1932, although calculus formation was not observed in all of these. Henline,[5] in 1930, reported three cases of cystine nephrolithiasis. About 70 per cent of the reported cases have been in males. The disease is quite widespread, cases having been reported from many countries.

Clinical observation of such cases has extended over a long period of years, the earliest recorded cases being those of Wollaston[6] in 1810, who presented a paper before the Royal Society of London on "Cystic Oxide, a New Species of Urinary Calculus." He reported two cases, one in a boy aged 5 and the other in a man aged 36. He called them cystic oxide calculi, as both were removed from the bladder; several years later the name cystine was proposed, since the chemical was found not to be an oxide. The clinical observations reported by

From the Section of Urology, the Jackson Clinic.
Read before the Section on Urology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

1. Simon, C. E.: Cystinuria and Its Relation to Diaminuria, Am. J. M. Sc. **119**: 39, 1900.
2. Link, R. E. A.: Beitrag zur Kenntnis der Cystinurie und der Cystinsteine, Leipzig, Sturm & Koppe, 1912.
3. Seeger, S. J., and Kearns, W. M.: Cystinuric Lithiasis, J. A. M. A. **85**: 4 (July 4) 1925.
4. Lewis, H. B.: Cystinuria: A Review of Some Recent Investigations, Yale J. Biol. & Med. **4**: 437 (March) 1932.
5. Henline, R. B.: Cystine Calculi: Report of Three Cases, Am. J. Surg. **8**: 581 (March) 1930.
6. Wollaston, W. H.: On Cystic Oxide: A New Species of Urinary Calculus, Phil. Tr., London, 1810, p. 223.

Prout[7] in 1821 were important. He reported two cases, one of cystinuria and one of cystine vesical calculus. Lassaigne,[8] in 1823, found a cystine calculus in a dog's bladder.

Chemically, cystine is a complex organic compound and belongs in the amino-acid group, the only one that contains sulphur, the latter being about 25 per cent of its content. Feeding experiments on dogs and rats have shown that it is an essential amino-acid necessary for growth and maintenance of body weight, and no other substance can replace it. It cannot be synthesized in the body, although some is stored in the muscles of the body and called endogenous in contradistinction to the exogenous, which is derived from the proteins of food. The chemical formula of cystine is $[S.CH_2CH(NH_2).CCOOH]_2$ and by oxidation is broken up into two molecules of cystinic acid; these substances are stored in the body tissue and play a great rôle in oxidation processes.

Cystine occurs in greatest concentration in keratin-containing tissue. In hair and wool the content varies between 5 and 10 per cent. In 1923, Ward[9] demonstrated that cystine is the only amino-acid that absorbs ultraviolet to any great degree, and suggested that it was thus of physiologic importance in protecting the body against prolonged exposure to sunlight, which explains the curious custom of the Arabs of wearing loose fitting woolen garments.

The distribution of cystine and the quantitative content of the various foods vary considerably. All proteins contain some cystine in variable amounts. Meat, eggs, milk, oats, beans and whole wheat bread contain large amounts of cystine, while cheese, gelatin, corn, peas and lentils contain considerably less. Fish has a cystine content less than most meats.

Cystine is found in traces in normal urine, but in amounts considerably less than is found in cases of cystinuria; crystals do not occur. Cystine calculi vary in size, and the pure calculus is nonlaminated and consists of a mass of crystals; the stones are honey yellow and waxy; other crystals may be present. Cystine crystals are colorless and highly refractive; they are hexagon-shaped, and occasionally needle forms are found.

The origin of the excreted cystine has not been definitely determined. Lewis and Lough,[10] after metabolic studies on a patient with cystinuria, concluded that no greater excretion of cystine was observed when the patient was on a diet of high cystine content than when he was on one of lower cystine content, so long as both diets were relatively high in protein and of approximately the same nitrogen content. With the patient on two diets, one of relatively high protein and low cystine content, the other of a lower protein content but more cystine, the excretion of cystine varied with the total nitrogen excretion and did not appear related to the cystine content of the diet. From other findings they suggested that the origin of excreted cystine may be largely endogenous, and that a high protein diet results in stimulation of metabolism with production of cystine rather than failure to oxidize the exogenous cystine present in a high protein diet.

Robson,[11] however, concluded from experiments that the rate of cystine excretion on high and low protein diets was in direct ratio to the protein content of the diet. Alsberg and Folin[12] also held to the latter view.

The toxic action of cystine has been studied by many investigators. Cox[13] and his co-workers have shown that young rats of 60 Gm. of body weight or less develop acute toxic nephrosis when restricted to synthetic diets containing 0.3 and 0.9 per cent of free cystine. Some of the rats, however, that developed the symptoms recovered and grew normally without the ration being changed.

Lignac[14] noted the close resemblance between the lesions found in the kidneys of white mice after the intramuscular injection of cystine and the lesions found in the kidneys of three children with cystinuria. In six mice there was actual nephrosis, and in the seventh, pyelonephritis with evident tendency to calculus production.

Curtis and Newburgh,[15] in a study of the toxic action of cystine on the kidney, concluded that as the level of the cystine content in the diet of white rats was raised above certain levels necrosis of the renal tubules occurred sometime during the course of the year. As the amount was increased, there was interference with growth; a still further increase acted as a powerful poison, and death occurred in a few days or weeks, with the production of a diffuse hemorrhagic necrosis of the renal parenchyma.

Cox and Hudson,[16] after animal feeding experiments, concluded that the susceptibility of young rats to cystine nephrosis is probably hereditary, and that cystine nephrosis in very young rats may be prevented by the inclusion in the diet of sufficient of the Osborne and Wakeman vitamin B concentrate of yeast. The active substance of the yeast that acted thus they concluded was probably distinct from any of the known accessory food factors.

Cystine calculi may be found anywhere along the urinary tract and in the prostate; they may vary in number, and in many instances great numbers of calculi have been found at one time. Cystinuria with the formation of calculi has been found in an infant under 1 year and in a man over 80 years of age. Tennant[17] and Mörner[18] each removed calculi weighing 50 Gm. or more.

ETIOLOGY

Prout thought that the condition was hereditary and felt that it was due to the improper assimilation of albuminous principles as the result of hepatic disease. Toel[19] reported the finding of cystinuria in several members of the same family. In Abderhalden's[20] family of patients with cystinuria, the cystinuria was shown to exist throughout three generations. Kretsch-

7. Prout, W.: On the Nature and Treatment of Stomach and Urinary Diseases, ed. 3, London, J. & A. Churchill, 1840.
8. Lassaigne, J. L.: Observation sur l'existence de l'oxide cystique dans un calcul vesical du chien, et essai analytique sur la composition élémentaire de cette substance particulière, Ann. de chim. et phys. **23**: 328, 1823.
9. Ward, F. W.: The Absorption Spectra of Some Indole Derivatives, Biochem. J. **17**: 891, 1923.
10. Lewis, H. B., and Lough, S. A.: Metabolism of Sulphur: Metabolic Study of a Case of Cystinuria, J. Biol. Chem. **81**: 285 (Feb.) 1929.
11. Robson, W.: Protein Metabolism in Cystinuria, Biochem. J. **23**: 138, 1929.
12. Alsberg, C., and Folin, O.: Protein Metabolism in Cystinuria, Am. J. Physiol. **14**: 54, 1905.
13. Cox, G. J.; Smythe, C. V., and Fishback, C. F.: The Nephropathogenic Action of Cystine, J. Biol. Chem. **82**: 95 (April) 1929.
14. Lignac, G. O. E.: Nephrosis and Nephritis Caused by Cystine, Nederl. tijdschr. v. geneesk. **2**: 2187 (Nov. 4) 1925; abstr., J. A. M. A. **86**: 318 (Jan. 23) 1926.
15. Curtis, A. C., and Newburgh, L. H.: The Toxic Action of Cystine on the Kidney, Arch. Int. Med. **39**: 817 (June) 1927.
16. Cox, G. J., and Hudson, Leona: The Nephropathogenic Action of Cystine and the Dietary Control of Cystine Nephrosis, J. Nutrition **2**: 271 (Jan.) 1930.
17. Tennant, C. E.: Cystine Calculi: A Complex Surgical Problem, J. A. M. A. **80**: 305 (Feb. 3) 1923.
18. Mörner, C. T.: Cystinuria in Sweden, Upsala läkaref. förh. **31**: 171 (Sept.) 1926.
19. Toel, F.: Beobachtungen über Cystinbildung, Ann. d. Pharm. **96**: 247, 1855.
20. Abderhalden, Emil: Familiare Cystindiathese, Ztschr. f. physiol. Chem. **38**: 557, 1903.

mer [21] likewise reported a familial case, the patients being twin boys; cystine crystals were present in the urine of other members of the family. This hereditary factor is considered important by most writers, there being many such cases reported.

The familial case of Thin [22] is interesting. The elder of two half-brothers, who had a dyspepsia and his wife gout, had twelve children, seven of whom had cystinuria and calculi. The younger brother had ten children, none of whom had cystinuria. Three of the children married cousins belonging to the first family; some of the children of these marriages have cystine calculi. Cystine crystals persisted in the urine when soda was given by mouth, but in five of the patients more calculi have not developed. Thin quoted Thomson Walker as saying that the mere presence of cystine crystals in the urine is not itself sufficient to produce calculi; some cement substance or insoluble colloid derived from fibrinogen or fibrin is necessary to hold the particles together. How this is brought about is not known.

Blum [23] did not believe that the formation of calculi was due to abnormal metabolism of the protein in the intestinal tract with the overproduction of cystine and its subsequent excretion unchanged in the urine. He showed by experiments that large amounts of cystine could be given by mouth and that it could be oxidized in the body without the production of cystinuria.

Moreigne [24] believed it to be due to a partial arrest of oxidation, and pointed out that cystinuria is a lifetime disease. Wasserthal [25] noted the frequent association of cystinuria and articular rheumatism and believed that infection was responsible for both. There were pain and swelling of both knee joints at the age of 12 in one of my cases. In Thévenot's case,[26] both parents had arthritis. Harris [27] stated that most patients with cystinuria are of a distinctly neurotic type; this tendency was not noted in either of my cases. Harris examined the urinary sediments in several members of his patient's family; two brothers had cystinuria, one of them with a definite rheumatic history; the other had a distinct oxaluria associated with cystine. Alsberg and Folin, as previously stated, expressed the belief that cystine is excreted in amounts proportional to the intake of protein and that alkalis do not act as solvents, but influence metabolism so that cystine is not formed and excreted in the urine as such.

Stasis in the urinary tract must be considered as a factor in the production of cystine calculi, as shown in Thomas's case,[28] in which left nephrectomy was performed on a child aged 4 for multiple cystine calculi; at operation, ureteropelvic obstruction from scar tissue, adhesions and an anomalous renal artery were found.

In all probability, the production of cystinuria and cystine calculi is due to some error in metabolism, in the faulty decomposition of the end-products of protein metabolism. The protein fractions that are involved are not known, but cystine is considered the most important. The organs responsible for the disturbance are not definitely known, the liver being considered responsible by many. In one of my cases large quantities of sandy particles of pure cystine appeared in the urine following an attack of "acute catarrhal jaundice." The mother stated that she had observed grossly many specimens in a glass container for cloudiness and mucus, and that to her knowledge the clear sandy particles had never been present until after the jaundice.

21. Kretschmer, H. L.: Cystinuria and Cystine Stones, with a Report of a New Family of Cystinurics, Urol. & Cutan. Rev. **20**: 1, 1916.
22. Thin, Robert: Familial Cystinuria, Edinburgh M. J. **36**: 490 (Aug.) 1929.
23. Blum, L.: Ueber das Schicksal des Cystins in Tierkorper, Beitr. z. chem. Phys. u. Path. **5**: 1, 1903.
24. Moreigne, H.: Étude sur la cystinurie, Arch. de méd. expér. et d'anat. path. **11**: 254, 1899.
25. Wasserthal: Beitrag zur Kasuistik und Aetiologie der Cystinurie, Centralbl. f. d. Krankh. d. Harn- u. Sex.-Org. **15**: 121, 1904.
26. Thévenot, M.: Calcul renal bilateral de cystine pure chez une fillete, J. d'urol. **27**: 231 (March) 1929.
27. Harris, A.: Cystinuria: A Comprehensive Study with Report of an Interesting Case, Surg., Gynec. & Obst. **38**: 640 (May) 1924.
28. Thomas, G. J., and Rodda, F. C.: Multiple Cystine Calculi in the Left Kidney with Obstruction at the Uretero-Pelvic Juncture and Multiple Cystine Calculi in the Bladder in a Boy of Four years, Tr. Am. A. Genito-Urin. Surgeons, **23**: 451, 1930.

DIAGNOSIS

A history of repeated passage or recurrent renal calculi requiring surgical removal should be suggestive of cystine calculus. A history of renal colic or of pain in the back with or without blood in the urine is suggestive of cystinuria.

The finding of cystine crystals or the presence of cystine in solution in the urine associated with symptoms or roentgen evidence of calculi is suggestive of cystine nephrolithiasis; however, its absence does not mean that the calculi are not made of cystine, as it occasionally disappears temporarily from the urine. In Beer's case,[29] multiple cystine calculi were passed and others removed, and at the time of removal of four calculi, cystine crystals were not present in the urine. A patient may have both cystine stones and stones of other chemical composition, as in Thévenot's case, in which a calculus removed from the left kidney was made of calcium and a subsequent calculus passed from the right side was made of cystine. In one of my cases two cystine calculi were found among several calcium calculi, and, similar to Beer's findings, cystine crystals could not be found in the several specimens of urine examined.

ROENTGEN EVIDENCE

Calculi that do not cast a shadow on the x-ray film are usually composed of pure cystine, xanthine or uric acid; as previously stated, such calculi may contain other salts and may cast shadows. In Thomas's case, cystine vesical and renal calculi that were shown on chemical examination to be pure cystine of a high degree of purity did cast distinct shadows on the x-ray films. The texture of the calculus has been suggested as a cause why some cast shadows and others do not. Filling defects in the pyelo-ureterogram are important. Culligan [30] stated that calculi that do not cast shadows on the x-ray films are usually not visible fluoroscopically when the kidney is exposed and delivered.

TREATMENT

The same principles of treatment applied to renal calculi, in general, are followed in the management of cystine calculi, such as the eradication of foci of infection and the establishment of free drainage in the upper and lower parts of the urinary tract.

Cantani [31] and Beale [32] early recommended large doses of ammonium carbonate, on the assumption that cystine is soluble in an alkaline medium. Klemperer and Jacoby [33] recommended alkalinization by means of sodium bicarbonate as well as the restriction of protein in the diet. The use of choleic acid, as suggested by

29. Beer, E.: Cystine Nephrolithiasis: Colon Bacillemia, Internat. J. Surg. **33**: 219 (July) 1920.
30. Culligan, J. M.: Renal Stones Permeable to the X-Ray, J. Urol. **11**: 559 (June) 1924.
31. Cantani, A.: Cystinurie, Fettsucht, Gallensteine, Specielle Pathologie und Therapie der Stoffwechselkrankheiten, Leipzig, Denicke, 1881, vol. 3.
32. Beale, L. S.: Cystine in the Urine Successfully Treated by Large Doses of Carbonate of Ammonia, Lancet **2**: 363, 1884.
33. Klemperer, G., and Jacoby, M.: Zur Behandlung der Cystinurie, Therap. d. Gegenw. **55**: 101, 1914; abstr., J. A. M. A. **62**: 1207 (April 11) 1914.

Edwards,[34] has not proved to be of decided benefit. Alsberg and Folin expressed the belief that it is impossible to free the urine entirely from cystine. Other observers believe that cystine will always return regardless of any plan of treatment.

Crowell [35] demonstrated the dissolution of bilateral renal calculi over a period of months; his plan of treatment consisted in the copious intake of water, alkalis by mouth, moderate limitation of the intake of protein and lavage of the renal pelvis with a solution of mercurochrome-220 soluble. The alkali treatment was also employed by Reaves.[36] X-ray pictures taken about one month after the beginning of the treatment did not reveal the previously existing renal calculus.

Mörner [37] expressed the belief that the cystine content of the urine can be diminished by a regulation of the intake of protein in the diet; when large quantities of sodium bicarbonate are taken, the cystine sediment decreases, without a diminution of the cystine dissolved in the urine. The effect disappears as soon as the alkali is stopped. He called attention to the danger of the formation of phosphatic calculi following the prolonged administration of alkalis.

REPORT OF CASES

CASE 1.—*History.*—Mr. E. T., aged 26, registered at the clinic on Sept. 6, 1931, complaining of pain of a typical right renal colic. There was no hematuria or dysuria. He had some nausea. The father was dead; the mother was living and well. The patient was an only child. An uncle had passed, on different occasions, from twelve to fifteen renal calculi. The past history was irrelevant except for pain and swelling in both knees at the age of 12 years. The patient had undergone appendectomy in 1925. For five or six years prior to 1929, he had passed calculi from both kidneys, always in the summer. In May, 1929, following an attack of bilateral renal colic, anuria developed. A cystoscopic examination by his physician revealed obstruction to the passage of both catheters. On an x-ray film obscured by gas, two indistinct shadows were overlooked. A urologic surgeon was called in consultation; a diagnosis of bilateral ureteral calculi was made, and an immediate operation was performed. The larger calculus shown in figure 1 was removed from the right ureter, and the small one from the left. Soon after the operation the patient passed two calculi from the left kidney. In June, 1930, another calculus was removed from the lower end of the right ureter.

Fig. 1 (case 1).—Cystine calculi removed by ureterolithotomy.

Examination.—General examination gave essentially negative results except for tenderness over the right kidney area. The tonsils were noted as septic, and prostatitis graded IV was present.

Laboratory examination showed the urine acid, with a specific gravity of 1.012; it was negative for sugar and albumin; it contained pus graded 1 and many cystine crystals. The hemoglobin was 78 per cent; the red blood cells numbered 5,100,000, and the white blood cells, 11,800. The Kahn reaction was negative. The blood urea was 44 mg.; sugar, 94 mg., and chlorides, 410 mg.

Course.—X-ray films taken on Sept. 6, 1931, showed small calcific shadows within the silhouette of each kidney; on September 7, an oblong shadow was seen in the region of the right ureter at the level of the fourth sacral segment (fig. 2). No shadow was visible in the silhouette of the right kidney. On the same date, the patient had an evening chill, and his temperature was 103.4 F. On September 8, cystoscopy revealed a diffuse cystitis, edema and inflammation about the right ureteral orifice. A number 5 catheter was passed easily on the left; the urine contained pus graded 1. On the right, there was an obstruction at 5 cm., which was passed by the catheter, releasing a large quantity of turbid urine. A pyelogram of the right side revealed hydronephrosis graded 2. The catheter was left in place; while I felt that the calculus was too large to pass spontaneously, on account of the previous passage of calculi, there was a possibility that it would do so. The temperature subsided to normal. The catheter became plugged on September 10, and there were a chill and a rise in temperature to 102.5 F. Cystoscopy was again done; the renal pelvis was aspirated and lavaged with 2 per cent mercurochrome, and operation was advised, a right ureterolithotomy being performed on September 11. Postoperative recovery was uneventful. On September 23, cystoscopy was again done, and a mass of sandy particles and one small calculus were removed from the bladder (fig. 3). The release of the obstruction probably allowed for the passage of the sandy particles from the renal pelvis. The right ureter was dilated, and the renal pelvis was lavaged with 2 per cent mercurochrome.

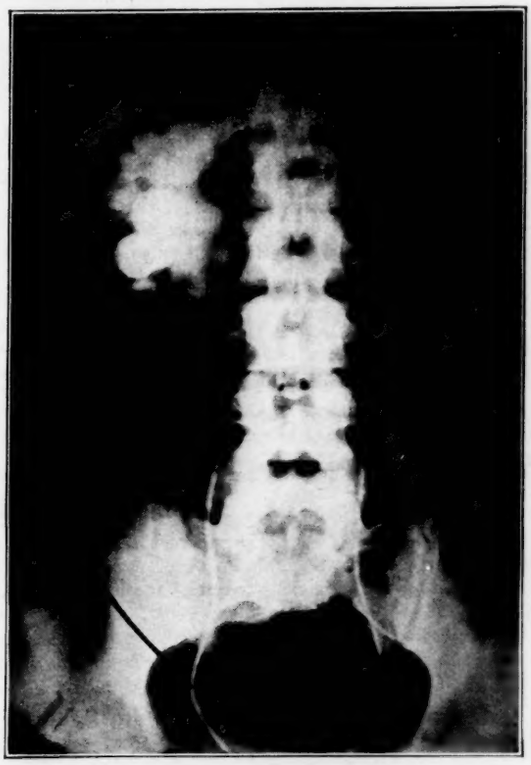

Fig. 2 (case 1).—The arrow points to the right ureteral calculus. There was right hydronephrosis.

Chemical analysis of stones passed previously showed them to be pure cystine. Chemical examination of a portion of the calculus removed by us showed cystine with the admixture of calcium salts. Examination of several specimens of the patient's mother's urine did not show cystine chemically or microscopically. Several specimens of urine from the patient's 4 year old daughter did not show cystine crystals.

34. Edwards, H. C.: Cystinuria with Calculous Formation, Brit. J. Surg. **12**: 345 (Oct.) 1924.
35. Crowell, A. J.: Cystine Nephrolithiasis, J. Urol. **11**: 545 (June) 1924; Surg., Gynec. & Obst. **38**: 87 (Jan.) 1924.
36. Reaves, J. U.: Treatment of Cystine Stones, South. M. J. **18**: 599 (Aug.) 1925.
37. Mörner, C. T.: Can Anything be Done to Diminish Stone Formation in Cystinuria? Upsala läkaref. förh. **32**: 1 (Feb.) 1927.

On September 26, tonsillectomy was done. The patient had been treated for prostatitis. Repeated cystoscopies with lavage of the renal pelves with 2 per cent mercurochrome (an alkaline antiseptic solution) were carried out, as recommended by Crowell, and right ureteral dilatation was continued.

On November 1, cystine crystals persisted in the urine. The patient had not been on a restricted diet, because of the chemical studies that were being made on the urine. Cystoscopic examination revealed the presence of small sandy particles that proved to be cystine on chemical examination. A specimen from the left ureter was negative on microscopic examination and did not contain cystine crystals. The right ureter was not catheterized at this time. The patient was put on a low protein diet, especially those foods of a high cystine content being avoided, and sodium bicarbonate by mouth was given in a sufficient quantity to render the urine alkaline.

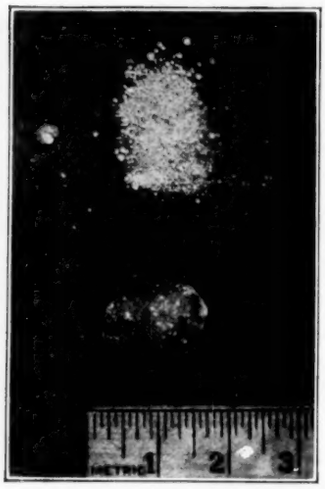

Fig. 3 (case 1).—Cystine calculus removed surgically. The sandy particles and small calculus were removed from the bladder cystoscopically.

From November 10 to 19, several specimens of urine showed great numbers of crystals, but in gradually diminishing numbers. From Nov. 19, 1931, to March 1, 1932, many specimens of urine were examined, a few of which were negative for crystals; most of them contained some crystals. The urine was always alkaline.

The succeeding five specimens taken at weekly intervals were all alkaline, and no crystals were present. Although cystine was found on chemical examination, the amount was decreased as compared to the earlier specimens. On April 1, the patient was put on general diet and the alkalis discontinued. Within two weeks crystals appeared, and on the twentieth day they were found in great numbers. Roentgen examination gave negative results. Metabolic studies are now being made.

CASE 2.—*History.*—J. H., a boy, aged 4, entered the clinic in June, 1926, complaining of attacks of pain in the lower part of the abdomen, which lasted from several hours to two or three days. There were associated nausea and vomiting, and at times diarrhea and rectal tenesmus. The temperature at times varied from 100 to 102 F. The attacks had been present for about one year, occurring at first at intervals of two or three weeks; during the past six months, the attacks had been more frequent. For the past five days, there had been frequency and dysuria. The family history was irrelevant.

Examination.—The past history was unimportant. Physical examination gave essentially negative results; on rectal examination, a hard grating mass could be felt on the bladder side.

Laboratory examination showed: The hemoglobin was 80 per cent; the red blood cells numbered 3,840,000, and the white blood cells, 18,350. The specific gravity of the urine was 1.006; the urine was acid; it was negative for sugar; it contained a trace of albumin and pus graded 1. The phenolsulphonphthalein specimen was 30 per cent for one hour. An x-ray film (fig. 4) showed a large cluster of calculi in the region of the right kidney; there was a similar cluster in the lower part of the right ureter or bladder. A cystogram showed a normal bladder outline; there was no reflux of mediums up the ureters. Cystoscopy was not done.

Treatment and Course.—Transvesical right ureterolithotomy was performed on June 21 (fig. 5). Recovery was uneventful. The abdominal pain disappeared; but mild attacks of pyelitis occurred two or three times weekly. The patient's general health improved, and on September 7, a right nephrolithotomy was done. A cluster of calculi similar to the one mentioned was removed. Unfortunately, these calculi were misplaced, and no chemical examination was made; chemical examination of the removed cluster of ureteral calculi showed it to be made of pure cystine.

The patient was not observed until October, 1931, when he was returned at my request. He had been in excellent health except for an occasional slight burning on urination. A few weeks prior to the visit there was an attack of what was diagnosed as acute catarrhal jaundice supposed to have followed the eating of pop-corn. The jaundice rapidly subsided. There had been no attacks suggestive of renal colic. General physical examination gave negative results; the urine was acid; it contained a few pus cells, many small sandy particles which were found on examination to be pure cystine and many crystals. Roentgen examination revealed no shadows suggestive of calculi.

Specimens of urine from both the father and the mother did not reveal cystine on either microscopic or chemical examination. The patient was placed on a low protein diet, with avoidance of those foods relatively high in cystine content; sodium bicarbonate by mouth had been given from Nov. 1, 1931, to March 1, 1932. Many specimens of urine were examined, and all were alkaline. Many showed grossly sandy particles that on chemical examination were found to be pure cystine, as well as many crystals. No specimen taken during this interval was without crystals. There was, however, a gradual diminution in the number of crystals present. The specimen taken on March 8 was alkaline and negative for crystals, as were the next four specimens taken at weekly intervals. The chemical reaction for dissolved cystine was positive; however, the amount was less than in former specimens. On April 1, the patient was put on a general diet and the sodium bicarbonate was discontinued. On the sixteenth day, crystals appeared, and on the twenty-first day,

Fig. 4 (case 2).—Cluster of right ureteral calculi. There was a similar cluster in the right kidney area, which does not show in the roentgenogram.

many crystals were present. On April 27, x-ray pictures were negative. Metabolic studies are now being made.

It was observed that this case closely paralleled case 1 in the number of weeks required for the crystals to disappear and the number of days required for them to reappear.

CASE 3.—*History.*—Mr. E. F., aged 57, a boilermaker, registered at the clinic on Feb. 14, 1932, complaining of difficulty and dysuria of one week's duration, which began several hours following an attack of right renal colic. During the week he

had passed eight small calculi; four were not recovered. Just a few hours before admission, he had passed a calculus per urethra that measured 1.5 by 1 cm.

The past history revealed no illness of importance, other than attacks of renal colic on both sides. During the past thirty-five years there had been two or three attacks yearly. The patient stated that during his work he perspired freely, and in the summer profusely; in spite of a copious intake of fluid, he did not urinate more than once or twice daily, and then only

Fig. 5 (case 2).—Cystine calculi removed by ureterolithotomy.

a small amount. In 1928, tonsillectomy was performed for infected tonsils, and some teeth showing periapical pathologic changes were removed.

Examination.—General examination gave essentially negative results except for a prostatitis graded 4. The urine was acid and negative for sugar; it contained pus and red blood cells graded 4. No cystine crystals were noted. The phosphates were graded 4. Routine laboratory examinations of the blood gave negative results. An x-ray film showed two shadows in the region of the left kidney; cystoscopy showed a diffuse cystitis. The urine from the right kidney contained 40 pus cells and 4 blood cells per high power field. The urine from the left kidney was negative. The right pyelogram showed ureterectasis graded 2 and pyelectasis graded 3. The left pyelogram was negative.

The large calculus passed by the patient was a typical phosphatic one; two of the smaller stones were smooth and yellowish, with crystalline surfaces (fig. 6). Examination showed them to be made of cystine, with an admixture of calcium salts. Following cystoscopy the pus and blood rapidly cleared up. In the three specimens of urine examined, no cystine crystals were found. The diagnosis was recurrent renal calculi, some of which were and others may have been cystine calculi.

Treatment.—The patient was put on a copious intake of distilled water, alkalis and a low protein diet. Lavage of the right renal pelvis at intervals was also recommended. He has not presented himself at frequent intervals nor furnished a sufficient number of specimens of urine to warrant any conclusions.

CASE 4 (Courtesy of Dr. I. R. Sisk, professor of urology, University of Wisconsin Medical School).—*History.*—M.D.R., a white boy, aged 19, was admitted to the student infirmary on Nov. 21, 1927, with a chief complaint of pain in the left side. He dated the onset of his illness back to 1923, when he was 15 years old, at which time he had numerous attacks of renal colic. He was operated on at the Mayo Clinic, and calculi were removed from the left kidney and from the right ureter, giving temporary relief from all symptoms. During the past four years, from 1923 to 1927, he had had about twenty attacks of renal colic, at times passing small calculi, and at other times passing blood. He was again operated on at the Mayo Clinic on April 9, 1927, at which time a large, branched calculus completely filling the pelvis was removed from the left kidney by pelviolithotomy. While at the Mayo Clinic, a diagnosis was made of cystinuria, and the patient was placed on an essentially basic diet for several months. However, this gave little change in the amount of cystine found in the urine.

Examination.—On November 21, examination of the kidneys, ureters and bladder showed multiple shadows in the left renal area. On cystoscopic examination on November 22, the bladder showed moderate, diffuse, chronic cystitis. Ureteral specimens showed from 10 to 15 pus cells on the right side and from 25 to 30 on the left. A functional test was unsatisfactory. The left pyelogram showed the original shadow to be included in the outline of the pelvis. It was small but deformed. The ureter was irregular and tortuous throughout its course. There were two shadows in the right side as large as a stone. A cystoscopic examination was made on December 1; the right ureteral catheter passed with some difficulty. The left catheter passed fairly easily and failed to drain, but with suction 10 cc. of thick pus was withdrawn. The urine drained from the right ureter was free and clear. The diagnosis was left nephrolithiasis in a pyonephrotic kidney.

On November 22, the nonprotein nitrogen was 38 mg. The first specimen of phenolsulphonphthalein was 40 per cent; the second specimen, 15 per cent. The Wassermann reaction of the blood was negative. Urinalysis showed: specific gravity, 1.016; an acid reaction, and a trace of albumin. Microscopically, there were much pus, an occasional red blood cell and an occasional cystine crystal.

Course.—Following cystoscopic examinations and manipulations with ureteral catheters, several cystine calculi were passed, and examination showed the left kidney to be functionless and secreting much pus. A paranephric abscess developed on the left side, which was opened and drained on Feb. 6, 1928. After recovery from this operation, exploration of the left kidney was done on April 1, in an effort to remove the kidney. This was found to be impossible owing to the marked adhesions and pararenal inflammation. Convalescence was uneventful, and the patient was discharged from the hospital on April 29.

In July, 1931, the patient was admitted to the Madison General Hospital, in the service of Dr. I. R. Sisk, suffering from repeated attacks of left renal colic. Roentgen examination showed two shadows in the region of the left kidney and in the lower left ureter, with a filling defect in the mid-portion of the pyelo-ureterogram. Cystoscopic manipulations relieved the pain, but the ureteral calculi were not passed. On September 25, there was a recurrence of the left renal colic. Roentgen examination showed two shadows in the left renal area and four filling defects in the left ureterogram. The diagnosis was pyonephrosis of the left side. There were multiple ureteral calculi on that side. October 2, left ureterolithotomy was performed. The immediate postoperative recovery was uneventful. No subsequent notes are available.

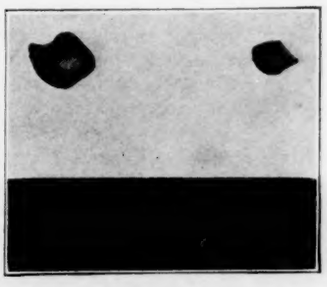

Fig. 6 (case 3).—Cystine calculi found among several phosphatic ones.

SUMMARY

1. Cystine nephrolithiasis occurs as a complication of cystinuria, the latter in all probability being due to an error in metabolism with a definite hereditary tendency.

2. Calculus formation is dependent on different factors, such as stasis and infection.

3. Cystine nephrolithiasis should be suspected in all cases of recurrent renal calculi, and the calculi and urine should be examined chemically for cystine.

4. If a cystine calculus is found or cystinuria is demonstrated, the patient should be put on a low protein diet, proteins with a high cystine content being avoided, and the urine should be rendered alkaline by the internal administration of alkalis. In two of my cases, after three months of such management the disappearance of sandy particles of cystine and crystals from the urine was noted, with a decrease in the cystine content of the urine. Crystals promptly returned after the resumption of a general diet and discontinuance of the alkali. The possibility of the formation of phosphatic calculi from the intake of alkali should be borne in mind. In case 3 no conclusions are warranted. In case 4 the formation of calculi was not prevented after several months of apparently the same management.

5. The changes produced in the urine by high and low protein diets, with and without alkalis, and by alkalis alone with the patient on a general diet and the rôle of the intake of fluid are to be studied in cases 1 and 2.

ABSTRACT OF DISCUSSION

DR. JOSEPH HUME, New Orleans: In recent years there have been a number of studies on cystine stone and cystinuria, chiefly by members of this association. Two aspects of the subject are of interest, biochemical and clinical. 1. Biochemical: Apparently, cystine stone is a true example of stone formation due to a metabolic defect the nature of which is not yet understood. The present conception was summed up in an editorial in THE JOURNAL, based on the work of Lewis and Lough of the University of Michigan. Proteins yield cystine when they are disintegrated. It is suggested that cystinuria is an anomaly of metabolism in which the sulphur-containing amino-acid derived from the catabolism of proteins escaped further oxidation and consequently is in part at least eliminated as such through the kidneys. High protein diets probably increase the urinary output of cystine by stimulating some processes of endogenous metabolism. It seems to me important that every one who has a case of cystinuria should seek the cooperation of a biochemist. 2. Clinical: (*a*) The familial or hereditary character of cystinuria not always present but constant enough to behoove the physician in each case to investigate the family history. (*b*) The diagnosis, which rests on the subjective symptoms, cystoscopy, roentgenographic and allied methods, and the examination of the urine. The main point in the examination of the urine is the presence of the characteristic crystals—colorless, hexagonal, often imbricated, but I doubt whether there are many hospitals where interns pay much attention to the character of the crystals seen. Unless one's suspicions are aroused, this important aid to diagnosis is seldom utilized. (*c*) The roentgen ray. Opinions are divided as to the visibility of cystine calculi. They have repeatedly been found and have repeatedly been missed. More case reports are needed in which the results of roentgen examination are correlated with the chemical composition of the stone. The question of a stone throwing a shadow depends, moreover, not only on its composition but also on its structure and thickness. It is probable, as indicated by the work of Graves, that pure cystine calculi will, as a rule, throw no shadow; impure cystine calculi will generally be shown. With the roentgen ray not exactly dependable, pyelograms and ureterograms are of great aid, and a negative area, plus the symptoms and conditions present, may allow one to establish a diagnosis. The wax-tipped catheter is often of advantage. (*d*) The treatment: Klemperer and Jacoby first used alkalization in the treatment of cystine stone, and with the report of Crowell showing the dissolution of large bilateral cystine calculi following the administration of sodium bicarbonate, limited protein intake and pelvic lavage with mercurochrome-220 soluble, it was felt that the millenium, so far as cystine stone was concerned, had been reached. But it is evident that this plan will not always work, as Braasch reports two cases in which it failed. It is possible to have cystinuria without the formation of stone, or to form stone at one time and not at another — the cystinuria meanwhile being constant. Cystine stone may occur without infection, or with infection, or again there may be cystinuria in a patient with infected kidneys and yet no stone formation ensuses. Until more is known, it is wise in the treatment of cystine stone and cystinuria to limit the protein intake, to alkalize thoroughly with sodium bicarbonate, to clear up existing foci of infection, to correct such infection as may exist in the urinary tract, and, if these measures fail, to operate.

DR. J. U. REAVES, Mobile, Ala.: In 1924 I reported a case of cystine stone that Dr. Ewell referred to. The patient was the mother of six children. I had not examined any of the children at that time, but now I have examined all the children. There are eight at present and not one of them has any evidence of a cystine urine. Since then the patient has consulted me at two separate times because of the pain in the kidney and each time I have noticed a shower of cystine crystals present, to which I attributed the trouble. She has had no stone since then. She knows how to keep herself alkalized. She notices that her teeth are "on edge" every time she is about to have an attack and needs more alkalis. In none of the eight children have signs of cystinuria developed. They have been examined at intervals of a few months for eight years. There has been no recurrence of stone in this case since roentgen examination, Dec. 20, 1924, showed absence of stone diagnosed Nov. 24, 1924, both clinically and roentgenographically.

DR. GEORGE H. EWELL, Madison, Wis.: I wish to assure Dr. Hume that in the paper I have inquired into the family history of two of the patients in detail to determine if possible how or through which parent the disease is transmitted. I consider it a great privilege to have two cases of cystinuria under observation at the same time in patients not related, and through their complete cooperation I intend to carry on future metabolic observations. As cystine is the only amino-acid that absorbs ultraviolet rays and since one of my patients passes calculi only in the summer time, I feel that there is some connection between ultraviolet rays and the formation of calculi. I propose to study the effect of ultraviolet radiation on cystine excretion. Whether or not the presence of crystals in the urine is necessary for the formation of a calculus or whether the calculus may be formed by the precipitation of the dissolved cystine in the urine I consider a highly important subject for study.

Coronary Thrombosis and Angina Pectoris.—The first great event in the history of painful heart disease was the description of angina pectoris in 1768 by Heberden, who then separated it from heart attacks characterized by dyspnea. . . . The second discovery of importance was the relation of the disease to the coronary arteries, as claimed a little later by Jenner and by Parry. Later still the remedial value of vasodilators was discovered. Lauder Brunton in 1867 introduced amyl nitrite, and Murrell in 1879 introduced nitroglycerin (trinitrin). Apart from these advances there seems to have been little progress in our understanding of the disease until suspicions arose that a prolonged attack of anginal pain might signify a particular pathological event in the heart muscle—namely, a cardiac infarction. . . . It was Herrick who, in 1912, began to insist on the ease of diagnosis, the frequency of the condition, and the frequent recovery. His contributions were reinforced by those of other physicians and by the use of the electrocardiograph. We owe a debt to America for elucidating what proves to be a considerable sector of the whole field of angina pectoris. The isolation of coronary thrombosis shows that direct clinical observations, coupled with postmortem work, can still contribute effectually to medical progress when physicians are not subject to the domination of authority and tradition.—Parkinson, John: Coronary Thrombosis, *Brit. M. J.*, Sept. 17, 1932, page 551.

TUMOR FORMATION

PATHOLOGIC CHANGES CONSEQUENT TO INJECTION OF OILS UNDER RECTAL MUCOSA

CURTICE ROSSER, M.D.
AND
STUART A. WALLACE, M.D.
DALLAS, TEXAS

Because of its origin the injection treatment of hemorrhoids has in this country remained a subject difficult to discuss in ethical circles without acrimony and irritation, a state of mind that has subordinated calm consideration of the comparative merits of agents suggested to controversy concerning the method in general. Because many orthodox proctologists now advocate the method in early hemorrhoids and as palliative therapy in more advanced situations, investigations similar to those reported in connection with injections into varicose veins, for example, would seem appropriate to aid the unprejudiced practitioner to determine the most effective and least perilous solutions.

It has appeared to us that the method has at times an unfortunate tendency to carry with it certain stigmas of its origin—universality of application, guarantee of cure and secrecy of formulas. This secrecy has lent to this investigation, based on a clinical and pathologic study of the results of intrarectal injections of unknown solutions by practitioners on both sides of the palest intrigue as well as complexity.

If we have properly interpreted the trend of injection therapy as applied to the rectum, the earlier strong solutions of phenol in carriers of water, glycerin or oil injected in minim dosage have been largely abandoned in this country and England possibly because of the incidence of slough as a complication. During the past decade two types of solutions have been popular, quinine urea hydrochloride, as advocated by Terrell [1] and weak phenol mixtures in oil vehicles administered in large doses.

Submucosal tumefaction became so common an observation in the proctoscopy of patients previously given injections in a number of cities and villages of this section that biopsies were performed on persons whose tumefaction had resulted in rectal occlusion, and it was determined that the tissue present was not, as had been previously believed, a pure fibrosis but a foreign body granuloma from nonabsorbed oil; in other words, an eleoma. This finding was reported in 1931.[2] No attempt has been made to enumerate the cases in which rectal rigidity or tumefaction has been discovered during routine proctoscopy or in patients examined in consultation, which has usually been requested with a view of eliminating the presence of a malignant process. The survey was based on a series of twenty patients with rectal occlusions and fifteen persons without stricture, all of them giving a history of previous injection of unknown solutions at the hands of sixteen physicians in eleven communities. In eight cases of stricture in which a specimen was not secured for biopsy, the stenoses were composed of coalescing tumors clinically identical with those found in the remainder of the series.

In addition, twenty-four experimental injections were made into hemorrhoids or under the rectal mucosa of human subjects, three oils, with and without phenol fortification, being used.

The subject of tumor formation from the subcutaneous injection of paraffin oil as distinguished from paraffin first appears in the literature with the report of the Freniets in 1917,[3] who ascribed the tumefaction to possible impurities in the oil or to individual susceptibility. In 1919, Mook and Wander [4] reported several cases, describing in detail one in which camphorated mineral oil produced tumefaction of the arm, which was reported after biopsy to be tuberculosis or a sarcoid.

Nine years ago Weidman [5] made two important contributions to the literature of this subject, summarizing past findings and reporting the results of experiments performed on monkeys by himself and with Jefferies.

Weidman used cotton seed, olive and paraffin oils in multiple subcutaneous injections into two monkeys. Olive oil did not produce a tumor; mineral oil produced a tumor at 75 per cent of the sites of injection and demonstrated a tendency to extend, forming chainlike masses, and also to metastasize to lymph nodes. At only 12.5 per cent of the sites of injections of cotton seed oil was tumefaction found, and the author, having demonstrated the presence of paraffin in these tumors due, he believed, to migration, explained the additional areas taking a fat stain as areas of normal body fat rather than persisting cotton seed oil, a conclusion that seems to us to be open to definite question. Practically no reference has been made to this interesting phenomenon since then, and except for a few isolated, "rare case" reports no work has been done to correlate the subject with intrarectal injections or further to attempt a differential study of the oils possibly concerned in rectal eleomas.

The intrarectal tumors under consideration have a definite clinical importance aside from the difficulty inherent in their removal. While many are symptomatically silent, constipation is common in persons with even mild rigidity, and obstipation is not infrequent when the canal has been rendered definitely stenopeic. Seven of the twenty patients with strictures were constipated and eight obstipated. Sacral neuralgia was a predominant and intransigent finding in five of the twenty patients and in four patients with isolated tumors.

These cases present a diagnostic puzzle at times, a situation even more probable in communities where the phenomenon is less frequent and the clinician and pathologist are unfamiliar with the gross and microscopic picture. The dense fixed tissue is not dissimilar to sarcoma, tuberculosis and syphilis, and the section itself presents features suggestive of the last two.

Two examples are submitted to illustrate the diagnostic difficulty that may occur:

CASE 1.—Mr. R., a white man, aged 58, entered Baylor University Hospital in 1926 with a history of low rectal pain, extreme constipation and bleeding, which had decreased but not ceased since an injection had been given six months before.

From the Departments of Proctology and Pathology, Baylor University College of Medicine.

Read before the Section on Gastro-Enterology and Proctology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

1. Terrell, E. H.: Treatment of Hemorrhoids by a New Method, Tr. Am. Proct. Soc., 1916, p. 65.

2. Rosser, Curtice: Chemical Rectal Stricture, J. A. M. A. **96**: 1762 (May 23) 1931.

3. Freniet, J., and Freniet, F., quoted by Weidman, F. D., and Jefferies, M. S.: Experimental Production of Paraffin Oil Tumors in Monkeys, Arch. Dermat. & Syph. **7**: 209 (Feb.) 1923.

4. Mook, W. H., and Wander, W. G.: Camphorated Oil Tumors, J. A. M. A. **73**: 1340 (Nov. 1) 1919.

5. Weidman and Jefferies (footnote 3). Weidman, F. D.: The Danger of Liquid Petrolatum in Parenteral Injection, J. A. M. A. **80**: 1761 (June 16) 1923.

Examination revealed a densely adherent, indurated, superficially eroded mass 1 inch (2.5 cm.) above the anus, the adjacent and remaining mucosa being normal. The mass was diagnosed clinically as a rectal cancer, and a permanent colostomy was performed. A section taken at this time revealed benign tissue containing glands, clear spaces and considerable fibrosis, the pathologist reporting "fibro-adenoma." Restudy of the tissue

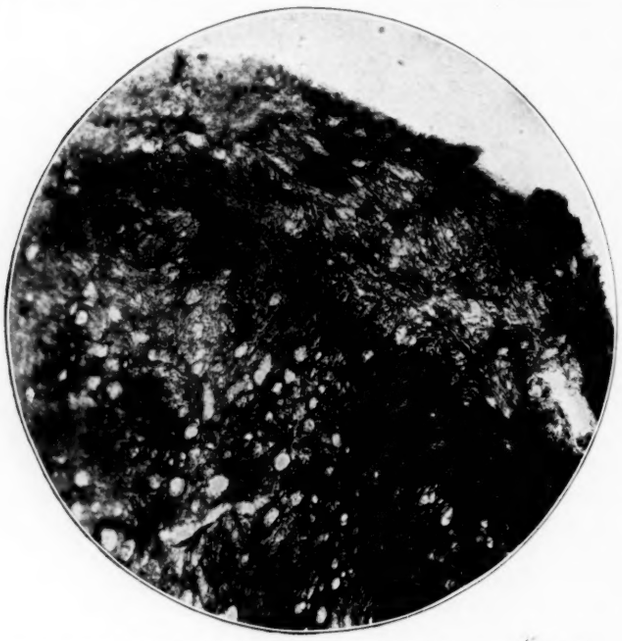

Fig. 1.—Polyp six months after injection of unknown oil solution.

in the light of our present knowledge indicates that the tumor was originally a rectal polyp, the gross alterations simulating malignancy being due to the presence of an unknown oil from the injection six months before (fig. 1).

CASE 2.—Dr. M., a man, aged 59, who had been given injections in 1925, while being examined for a suspected urologic lesion in 1928 was found to have a definite annular stricture 2 inches (5 cm.) above the internal sphincter. He was referred to a general surgeon on the staff of the Baylor Hospital, who made a clinical diagnosis of a malignant process, but removed a small piece of tissue to confirm the diagnosis. The report was "submucous tissue heavily infiltrated with mononuclear cells, chronic inflammatory reaction, fatty fibrous tissue, normal glands. Opinion: chronic inflammation." Restudy of this tissue now reveals a typical oil tumor from the injections three years before. One of us examined this patient in 1931 and again in 1932; contracture and constipation are slowly increasing, and the patient requires repeated reassurance as to the absence of a malignant condition because of his experience in 1928.

Two of the other patients with strictures in our series entered the hospital with a previous diagnosis of rectal cancer, and a section from a third was first considered tuberculosis or syphilis.

In the same connection, review of a case from the clinic of Harvey Stone will be of interest. In 1930, Fried and Stone [6] reported the following experience:

A man presented himself with persistent and increasing constipation. A history of intrarectal injection of some unknown solution two years before was given. Proctoscopic examination revealed an annular constriction at the level of the apex of the prostate, quite hard and fixed, with well defined edges and a smooth nonulcerated surface. A preliminary diagnosis of sarcoma was made, and a biopsy was done. The pathologic diagnosis was "tuberculosis of the rectal wall," and the lower portion of the rectum was excised. The gross specimen was described as being gray fibrous tissue in which were hard, clear, transparent, gelatinous and yellow fatty areas. Microscopic study showed small round cells and structures that resembled tubercles. The tissue in these places seemed *rarefied* (italics ours). Giant cells were present in large numbers, but there was no evidence of caseation. The opinion was given by an eminent outside authority that the section was a paraffinoma and that a few hyaline areas, found after long search, represented droplets of paraffin. The photomicrograph that accompanied this interesting article pictured the section as described, including widely disseminated, clear-appearing areas which we venture to suggest from our own observation would be found to contain the injected oil if a fat stain were used.

Olive oil is an unsaturated fat of the olein series with an iodine number of from 89 to 97. Cotton seed oil is an unsaturated fat with an iodine number of from 105 to 144. Mineral oil of American manufacture is a mixture of hydrocarbons of the methane series; that of Russian origin is composed of naphthenes or hydrocarbons of the benzene series having the empiric composition of ethylene C_nH_{2n}. Owing to its composition, it behaves similarly to the hydrocarbons of the methane series. Olive oil and cotton seed oil become dark red, almost maroon, when scharlach R is used as a stain. Mineral oil takes up much less of the stain and becomes yellowish orange. Mineral oil is not blackened by osmium, while the other two oils are. These two stains were found effective for differential staining.

Grossly, the typical tissue examined is firm and covered with thin, usually intact mucosa and on cut section presents a yellow or yellowish-gray surface. This appearance was so constant in our experience that in our later cases eleomatous tissue was easily identified by the naked eye.

Histologic sections stained with hematoxylin and eosin from twelve cases of stricture showed dense fibrosis and the presence of oval or round spaces as a constant finding in all. In the majority, very large, multinucleated cells of the foreign body type, occa-

Fig. 2.—Typical giant cell from stricture tissue. Mixed oils.

sionally containing vacuoles in the cytoplasms, were found in or near the spaces (fig. 2). The apparent vacuoles were frequently lined by relatively large cells with lightly staining or slightly granular cytoplasm and small round nuclei. Some of these resembled young fat cells or xanthoma cells and occasionally appeared as syncytium. The diagnosis of eleoma was possible in all cases.

6. Fried, H., and Stone, H. B.: Four Rare Rectal Tumors, Surg., Gynec. & Obst. **50**: 762 (April) 1930.

Fresh tissues were available from five cases of stricture for oil stain. These, when sectioned by the frozen method and stained with scharlach R, were found to contain stainable material in the spaces to which reference has been made. Three of the tissues took the yellowish-orange stain we believe characteristic for mineral oil; the other two, in addition to orange-staining

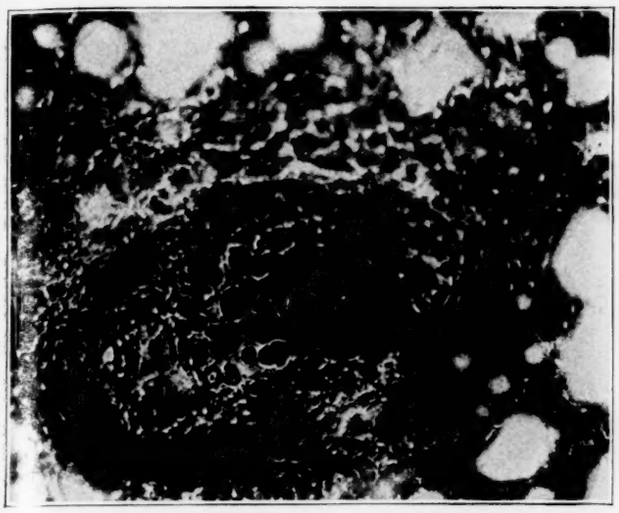

Fig. 3.—Section from tumor produced by injection of vegetable oil.

areas, showed the presence of considerable red-staining material, a picture we believe to be due to injections of a mixture of mineral oil and some vegetable oil. The latter finding was checked by osmic acid staining. It is interesting to note that the stricture tissues that by ordinary staining methods appeared spongy, owing to the widespread rarefied appearing spaces, were actually quite firm.

Of the fifteen patients without strictures who presented themselves with a history of some type of injection treatment, lump formation was noted in twelve. Hematoxylin and eosin sections demonstrated the fibrosis and vacuolization typical of an oil tumor in ten cases, and fresh tissue for stain was available in seven of these. In four the findings were those previously described in which mineral oil was present; in three there were less regular, in places poorly circumscribed, spaces with many small vacuoles and varying amounts of fibrosis. With scharlach R stains, the spaces were found to contain deeply red-staining fat, often showing coarse granules. Numerous phagocytic cells containing oil were present (fig. 3).

EXPERIMENTAL INJECTIONS

Tissue from the human rectum at the site of experimental injections of oil was examined in twenty-four instances.

Olive oil was used alone six times, variable periods elapsing before removal of the tissue. The shortest interval was one minute, the longest two months. After two months only a small amount of oil remained (fig. 4). There was no fibrosis or definite cellular reaction. On staining with scharlach R, there were seen scattered fat droplets in phagocytic cells and a small amount of fat in perivascular regions. The tissue removed at shorter intervals showed varying amounts of oil, usually small in amount, without fibrosis. Apparently the olive oil is readily phagocytosed or otherwise utilized without producing any observable local change. The shortest interval, one minute, showed some mechanical separation of tissues, without a cellular reaction. On staining for fat, there were seen large irregular splotches of deeply red-staining fat. Grossly, tumor formation was not present in any of the sections.

Mineral oil was used in five instances. The interval between the injection and the removal of specimens varied from one minute to nine months. Tissue removed at one minute intervals showed only spaces due to mechanical separation of tissues. Scharlach R stain revealed yellowish-orange-staining splotches filling the irregular spaces. There was no cellular reaction. The other tissue removed at intervals of ten days, twenty days and nine months, when stained with hematoxylin and eosin, showed round and oval spaces at times lined by large cells with clear or lightly granular cytoplasm and occasionally appearing as syncytium. Several spaces contained large giant cells of foreign body type with centrally placed nuclei. Some of these had vacuoles in the cytoplasm. There was a variable connective tissue increase. Scharlach R showed these spaces filled with yellowish-orange-staining oil. The larger spaces were only partly filled, oil remaining at the periphery, presumably part of the oil having escaped owing to handling. Tumor was present after a brief period at all sites.

Cotton seed oil was used in thirteen instances. The interval between the injections and the removal of tissue varied from three days to ten months. There was usually moderate to slight fibrosis, although in a few instances there was no evidence of a connective tissue increase. There was marked variation in the number of vacuoles. One specimen showed numerous oval spaces and small vacuoles; some of the spaces had a lining of cells with clear cytoplasm, and rare giant cells were seen of foreign body type. Many cells were present, having abundant cytoplasm suggesting xanthoma cells.

Fat stains revealed variable amounts of deeply red-staining fat, frequently seen in phagocytic cells, in small globules and in larger spaces; the fat often had a granu-

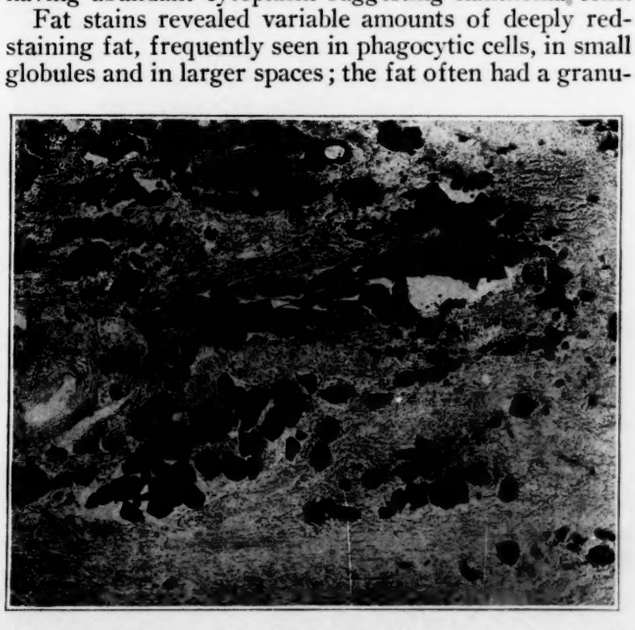

Fig. 4.—Osmic acid stain, showing olive oil present in human rectal tissues two months after injection.

lar appearance (fig. 5). At times it was abundant in perivascular regions, but could be differentiated from original fat by the smaller size and granular appearance of part of the oil. Palpable tumors were common although not universal and apparently varied directly with the amount of oil injected. In one of our earlier cases, in which mineral oil and cotton seed oil were

separately injected into two hemorrhoids, the site of the injection of the cotton seed oil at the end of four months demonstrated a firm tumor mass which apparently contained both mineral and vegetable oils. The migratory ability of mineral oil stressed by Weidman [5] was possibly responsible for this admixture of oils.

In some instances, phenol was added to the oil injected. When a low percentage of phenol was used there was no apparent difference in the tissue reaction from that resulting from oil alone; stronger solutions (10 per cent) in three instances produced slough with extrusion of a part of the oil injected.

SUMMARY

Twenty strictures in patients who had previously received injections were found to be made up of coalescing, firm, yellowish lumps. Sections were available from twelve; all indicated the presence of retained oil. Oil stains of five sections demonstrated vegetable oil mixed with paraffin oil in two and paraffin alone in three.

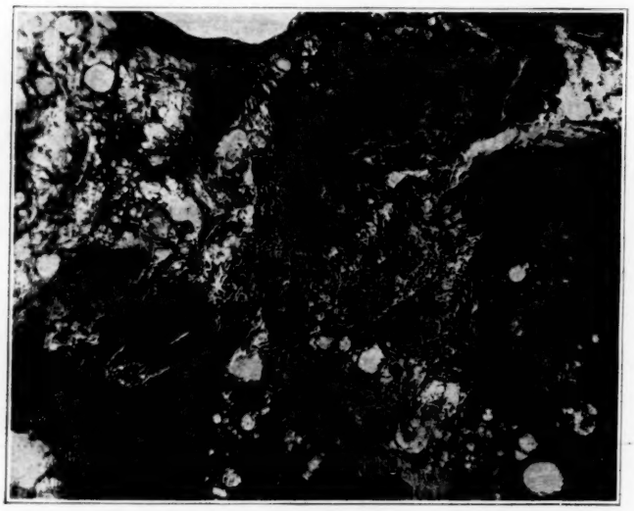

Fig. 5.—Experimental cotton seed oil tumor in human rectum.

Twelve of fifteen cases of nonstrictured rectum with a history of injections showed lump formation. Tissue examination demonstrated eleomas in ten. Oil stains were made in seven of these; four were apparently due to mineral oil, and three contained a vegetable oil.

Twenty-four experimental injections were made into human rectal tissue. Six injections of olive oil did not produce a gross tumor or a proliferative reaction although the oil was to some degree retained in the tissues as long as two months.

Five injections of mineral oil constantly demonstrated tumor formation after a brief period. Foreign body reaction was marked. Migration of oil was noted in one case.

Thirteen injections of cotton seed oil (using a proprietary brand commonly injected) were made. Tumor was common but not universal and varied directly with the amount of oil injected. Proliferative reaction was usually definite but less so than with paraffin oil.

Phenol caused slough in the few cases in which strong solutions were used; a weak strength did not apparently affect the tissue reaction so far as tumor formation was concerned.

Attention is called to the necessity for differentiating the lesion under discussion from cancer grossly and from tuberculosis on section.

CONCLUSIONS

Retention of injected oil and consequent fibrosis are in this state the chief etiologic agents responsible for stricture in persons who have previously received injections. The same phenomena are apparently responsible for isolated lump formation in the rectum.

Olive oil produces no special tissue irritation and is not a probable cause of oil tumor.

Mineral oil did not fail to produce a tumor when injected, and we see no reason to indict individual susceptibility as a factor in man. Mineral oil was apparently the prime agent in the chemical strictures of our series, and we have no doubt that its tendency to produce local irritation plus its known migratory and coalescing ability is responsible.

Cotton seed oil apparently holds an intermediate position as a tumefacient, the fibrosis and oil retention being definite though less marked than the reaction from paraffin oil.

Phenol plays no appreciable part in the production of eleomas.

The photomicrographs were made by Lewis Waters of the department of medical art.

ABSTRACT OF DISCUSSION

DR. FRED D. WEIDMAN, Philadelphia: The dermatologist became acquainted with liquid petrolatum through the avenue of the well known "camphorated oil" tumors. Thereafter he met misfortune when liquid petrolatum was used as the vehicle for mercuric salicylate in subcutaneous injections, forcing him to substitute vegetable and animal oils. Other specialists have found liquid petrolatum tumors purposely induced in the tunica vaginalis testis to avoid conscription. The roentgenologist introduces iodized oil into the bronchi. Liquid petrolatum is used in the pleural cavity to induce pulmonary compression. Now the proctologist finds liquid petrolatum tumors around the anus. The authors have confirmed our (weak) finding that cottonseed oil will also sometimes cause foreign body granulomas. I felt rather chary at accepting this in our work on monkeys. I felt that possibly it was due to extension of liquid petrolatum from an adjacent injection site, but now I am grateful to find that the same experience has been met in an entirely independent work in which the "spilling" factor did not obtain. Perhaps the explanation of this lies in some "impurities" in the cottonseed oil; unlike olive oil, there may be contaminating lipids present which are unsaponifiable and unabsorbable and which remain and provoke the foreign body reaction. Theoretically, the effect of these oils on tissue can be brought about in two ways. First, any oil, if injected in sufficient bulk, will not be properly handled and absorbed. However, if used in ordinary quantities, say 0.5 cc., especially if emulsified, there will be no resultant oil tumor. On the other hand, if even small quantities of a nonsaponifiable substance, such as cholesterol or liquid petrolatum, are employed, foreign body granulomas will result. In this light, it may be that the proctologist will still be able to maintain whatever usefulness oil injections may have and yet avoid stricture by varying the quantity of olive oil injected or making mixtures of absorbable and nonabsorbable oil. As to an associated tuberculosis, dermatologists too have struggled with the histologic diagnosis between liquid petrolatum tumors and tuberculosis. Of course, diagnosis is easy when the oil spaces are so large as to give the "Swiss cheese" effect, the fenestrations being clearly visible when a section is held up to the light. I still think that there may be occasional tuberculous admixtures in these foreign body granulomas. Foreign body granulomas of diverse kinds will probably create a locus minoris resistentiae in which tuberculosis, in addition to syphilis, may secondarily determine.

DR. C. J. DE BERE, Chicago: I believe that the bad results are due to a poor selection of cases and a lack of knowledge of the pathologic conditions at hand. Only 50 per cent of the usual cases of hemorrhoids are suitable for this kind of

management. Since this method of treatment has become popularized, it is not uncommon to see strictures of the rectum dating back to the time of the injections. My associates and I have made numerous microscopic examinations of surgically removed hemorrhoids which had been injected previously with solutions of phenol and vegetable oil. We found that the loose submucous connective tissue had been replaced by a dense, inelastic, fibrous tissue, crowding and constricting the blood vessels. In a good many cases we found that this fibrous tissue encircled vacuoles in which the oil could be shown if stained with sudan III.

DR. C. C. TUCKER, Wichita, Kan.: When there are internal and external hemorrhoids, the external hemorrhoids should be removed before the internal hemorrhoids are suitable for injection. Then, why shouldn't a clean-cut operation be done, the internal hemorrhoids being removed at the same time that the external hemorrhoids are? The patient would be cured instead of having to come back time after time for injections, which at the most are palliative.

DR. JEROME M. LYNCH, New York: I had a case similar to the cases described by the authors. The patient was a frail man of 55 who had had bleeding hemorrhoids for years. Being opposed to operation, the surgeon who formerly treated him suggested injections of phenol in oil as a substitute. He received five injections at weekly intervals, then skipped a week and had one more. These treatments were accompanied by great pain. Two months later he found he had lost weight, his temperature was between 100 and 102 F., and there was a slight discharge of pus from the rectum. His discomfort increased, he had pain in the sacral region and down the legs. The evening fever continued, and there was difficulty in moving his bowels. A roentgen examination showed an obstruction at the peritoneal reflexion. When I saw him he had abdominal cramps, discharge of pus, loss of weight and weakness. Examination showed a hard mass occupying the superior pelvirectal space and dipping down on each side of the rectum about 10 cm. from the anus, causing partial obstruction of the bowel. He was brought to me with the diagnosis of sarcoma of the rectum, but I suggested an inflammatory rather than a malignant mass. I performed a colostomy and he began to improve. In May of this year the patient was feeling very fit. He had gained 20 pounds (9 Kg.), and the inflammatory mass had considerably lessened. I closed the colostomy and the patient is now in good condition.

DR. E. G. MARTIN, Detroit: I trust that the authors' investigation of the other oils may continue to a definite conclusion. The so-called injection treatment affords an unfortunate means for the charlatan to thrive and offers a lure to the uninformed and misguided ethical physician. The injection treatment has its place, but by no means is it a "cure all"; it is often disastrous.

DR. LOUIS J. HIRSCHMAN, Detroit: I want to add one more type of oil to the list with which the authors have been working. In a limited experience with experimental injections, in three cases I got into what might have been a disastrous situation. Somebody used cod liver oil, first for the injection treatment of varicose veins elsewhere, and more recently for the injection treatment of hemorrhoids. The cod liver oil mixture has in my experience experimentally been just as irritating as any of the other oils and formed a very dense, hard tumor with necrosis and ulceration and infection; I should like to utter a warning note in the use of this oil along with the others. The injection treatment of hemorrhoids has a place in proctology when administered by legitimate individuals who are properly trained. The patient, however, must know that it is merely a palliative remedy for his relief until subsequent operation can be performed. No patient who ever was treated by any injection technic was cured permanently of hemorrhoids, and the more that physicians stand back of that dictum, the more that practitioners and patients realize that it is merely a relief and that the majority recur after every form of injection, whether aqueous or oil, the better the status of the treatment of hemorrhoids will be.

DR. CURTICE ROSSER, Dallas, Texas: I am grateful to Dr. Weidman for the fact that he apparently is willing to accept our interpretation of the only point in which our work was definitely at variance; that is, as to the possible tumefacient ability of cottonseed oil. His suggestion that cottonseed oil contains some additional factor, such as cholesterol, which renders it tumefacient, when olive oil, so closely allied to it in saturation index and iodine content, is not, should be investigated. I cannot go the whole length of the road with Dr. Hirschman. While I am not an ardent advocate of injections, I believe that injections have cured a number of cases of hemorrhoids in the first stage.

REPAIRS AND ADJUSTMENTS OF THE EYELIDS

V. P. BLAIR, M.D.
ST. LOUIS

He who undertakes to restore function or to correct the appearance of a damaged eyelid must be prepared to consider not only the anatomy and contour of the lid itself but also the structures that give it support and those that are in continuity. A neighboring distortion

Fig. 1.—*A* shows one half of the face very much damaged by repeated applications of radium that were made to obliterate a "port wine stain." The conjunctiva was covered with granulations, and the sight of that eye had been destroyed or obstructed by a cataract. *B* shows the amount of restoration obtained by removing the scarred tissue and adjusting a large chest flap, but the newly made lower lid does not stand high enough to reach the paralyzed upper lid. In this case it was simpler and safer to use a full thickness free graft from behind the ear rather than to swing down a pedicle flap from the damaged forehead (see *D*). In using a skin graft to hold up a lower lid that lacks an orbicular muscle, the incision in the lid swings up beyond the level of the fissure for an appreciable distance, internal to the inner and external to the outer canthus. The skin graft, which is drawn taut and is firmly anchored at each end of this incision, acts as a hammock that holds up the border. *C* shows the result after the graft had been applied.

Fig. 2.—*A* shows a complete ectropion of the lower lids merely from a scar as the result of a burn of the cheeks, lids and nose, which was treated by "stent" grafts, with the result shown in *B*. It might seem curious that as much ectropion of the lower lids as here shown was not of necessity accompanied by constant tearing. In closing the eye, the orbicular muscle may draw up a fold of conjunctiva that more or less perfectly sweeps the lower part of the globe and makes contact with the upper punctum, thus permitting siphonage.

can damage or hamper the movements of an intrinsically normal lid, or, if unrecognized, might compromise the operative result.

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Function first, appearance second, are the motifs that actuate surgical restorations. Besides protecting the eye from harsh contacts, foreign particles and excess light, the lid nurtures by the caress of its lining, the nice application of the tarsal edge that at every blink sweeps the exposed ocular surfaces, and the slight sphincter action of the orbicularis muscle that pumps the cleansing tears toward the puncta. All these, as well as the maintenance of proper relation of these puncta to the globe, are dependent upon the integrity of the lid.

In practically all cases in which the lid has been damaged, some plan can be devised to improve or correct the situation; but many of the problems are too complex to be solved by a single operation or even by a single series. In all, the first and most essential step is to determine the nature, location and extent of the offending lesion. The frequent occurrence of a sag or ectropion of the lower lid may be due to scar contracture following a loss of the skin of the lid or a loss of the skin with the underlying muscle. It may be due to a scar deep in the substance of the lid, to traction of a scar in a contiguous part of the cheek, to a

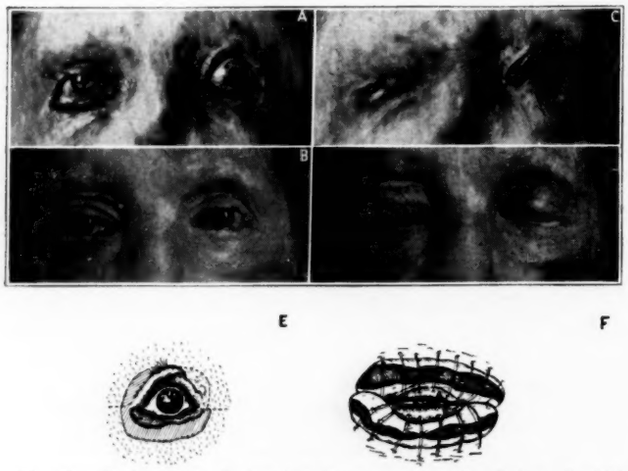


Fig. 3.—*A* shows the destruction from an ulcerative lesion of eight years' duration which had yielded to treatment, leaving satiny scars. It will be noted in *C* that, while the patient can, on the right side, still fairly well approximate the tarsal borders, the left eye was closed by a sort of sphincter action that drew the conjunctiva over the globe in two folds. She had lost also the entire external nose and the surface covering of her forehead, lips and cheeks. She had an external nasal passage that was reduced to about 3 mm. in diameter, and the brows and lashes had been destroyed. As expense was a controlling factor, within a period of ninety days, in five operative steps, each dealing with two areas, the lids and lips were released and surfaced, eyebrows were made from free scalp grafts, and an external nose was made from the arm. Later adjustments were made. The factor of speed is mentioned because it partially accounts for a certain roughness in the result, but the patient now can breathe through her nose and go around without the heavy black veil that was necessary previously. *E* and *F* are diagrams showing how both lids of the left eye were released and grafted by means of split skin grafts applied over wax forms. In *E* the dotted lines show incisions through the scar. The striped areas were excised, and the stippling shows undermining done to release the underlying orbicularis muscle. In *F*, *a* and *a'* indicate the conjunctiva of the lids, which are drawn by suture out over the stents *b* and *b'*, which carry large split skin grafts, raw surface out.

paralysis, to senile weakness of the orbicular muscle, to the weight of a paralyzed cheek, or to loss or displacement of the bony orbital border. An extreme enophthalmos can be the cause of a separation of the lid from the globe.

Having identified the type and location of damage, which—whether congenital or acquired—is here usually synonymous with loss, the next step is to formulate a working plan. In each instance the plan of correction will vary, but its aptitude will largely predetermine not only the quality of result but also the amount of effort and time to be expended. Part of this plan will be to find appropriate available tissue to compensate for that which is missing. To determine before operation the amount that will be needed, one must measure the size of the present defect and add to this the estimated retraction of all remaining normal tissue when it is released and allowed to return to its natural relationships, and, furthermore, one should allow for some contraction after the repair has been made. For a split skin graft applied to a lid, this allowance should be close to 60 per cent.

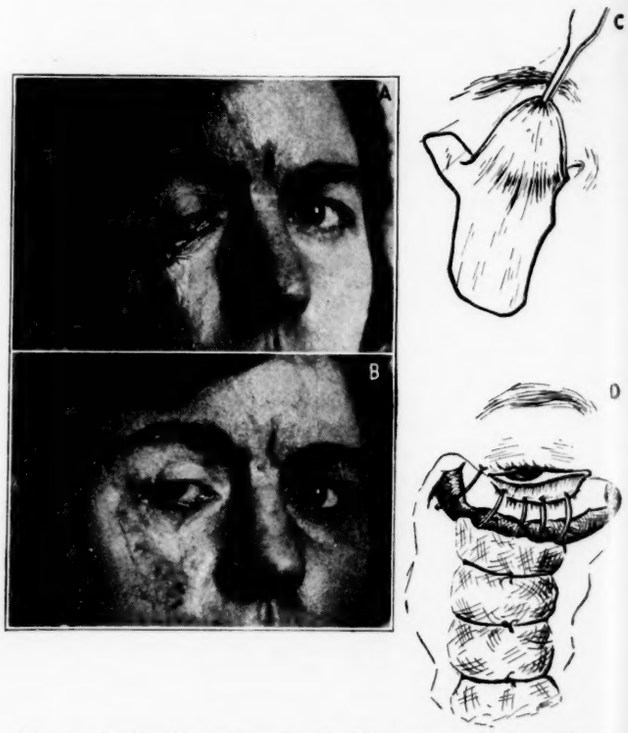


Fig. 4.—Combination of "stent" and of flat pressure in the application of a split graft to both the lid and the cheek. *A* shows the scar resulting from a burn that destroyed not only the skin and subcutaneous tissue of the lower lid but also some of the upper lid and a large area on the cheek. The outer canthus and upper lid are drawn down. *C* shows the amount of relaxation obtained when the scar was removed. This was sufficient to permit the lower tarsus to be drawn up to the brow. *D* shows the appearance immediately after completion of the operation. A split graft approximately 3 by 5 inches (7.6 by 12.7 cm.) was taken from the inner surface of the thigh, the upper part of which was draped over a "stent" molded to fit the lower lid and contiguous area external to the outer canthus. This was sutured in place in the usual fashion (see fig. 3 *F*), except that the free part of the graft rested on the raw area of the cheek. The lower part was covered by a loose roll of dry gauze covered with one layer of grease gauze, the whole being used as a "stent" and held in place by means of transverse sutures that engaged the skin of the cheek on each side. *B* shows the result a little over a month later. It will be seen from the breadth of the upper lid and the lift of the brow that, in spite of the excess of skin graft and the spreading tension with which it was applied, there is not yet sufficient release of the upper lid. The patient has been asked to return for further correction.

Fig. 5.—*A* shows the destruction of the outer half of both lids, the adjacent tissue of the temple and the conjunctiva from radium used on a melanoma of the outer canthus twelve years previously. *C* shows a stage of the repair in which an epithelium-lined pedicle flap, taken from near the hair-line, has been implanted into the damaged area after removing the scar and allowing the stretched half lids to return to the natural positions. *B* shows a later stage. The tarsal fissure has been extended outward and the bordering flap thinned by excising wedges of subcutaneous tissue. The underlying graft was then united to the skin along the new tarsal edge. Not until the specially made eye shown in *B* was in place did we appreciate the fact that the new conjunctival sac is situated about 2 mm. too far from the midline. This seems to be caused by the fact that in healing the original scar in the outer part of the sac drew on the membrane until the sulcus that naturally lies behind the inner canthus had been eliminated. This will be corrected with a "stent" graft behind the inner canthus when the patient returns.

If only skin has been lost, only skin should be substituted, not skin and fat; this point is important. Whether to use a full thickness or a split graft will depend on the needs and possibilities in each particular case. The more common sources of skin of a thickness that most nearly approximates that of normal skin of the eyelid are: (1) another lid, (2) skin from behind the ear, (3) the inner surface of the arm and (4) prepuce. Skin from behind the ear is used by preference, but only where the vertical width of the defect is not over three-fourths of an inch, because of the difficulty of hiding evidence of a wider loss from this area (fig. 1). A graft from this source is usually of good color, and there is less contracture under a full thickness graft than under a split graft. The split skin graft, however, is more certain of take, requires a shorter period of postoperative care, and, if applied over a wax form, the lid can usually be stretched sufficiently to allow for 60 per cent contraction (figs. 2 and 3).[1] Furthermore, when needed, this type of graft can be so applied as to cover the lid defect and also an adjacent area of indefinite size (fig. 4).

Fig. 6.—*A* shows a complicated injury of the lids and socket from the explosion of a supposedly dead "flower pot" while the patient looked directly into it. Besides the destruction of the globe, there was an extensive loss of conjunctiva and orbital fat from both lids. In the upper lid there was a deep transverse destruction across the upper part and also most of its lower third. The correction shown in *C* consisted in replacing the lost conjunctiva with free skin graft and filling out the orbit with a cartilage graft inserted directly into the stump of the eye so as to retain also what movement had persisted. The upper lid was repaired by throwing into the defect below the brow a temple flap wide enough to make up for the loss here and also to permit the skin of the lid to be pushed downward to form a transverse fold, the posterior surface of which pieced out the missing lining of the lid, while the free lower border substituted for the lost tarsal edge (see *B*). The lower lid was also adjusted, the whole requiring five separate operative steps.

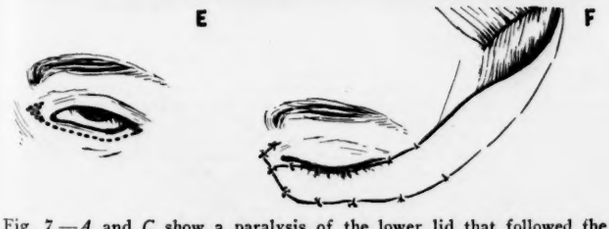


Fig. 7.—*A* and *C* show a paralysis of the lower lid that followed the removal of a paraffinoma from within the lid which had resulted from an interstitial leakage of an injection of mineral oil into the lacrimal sac in an attempt to overcome an obstruction of the nasal duct. *F* shows the manner of implanting a pedicle flap into an incision made in the lid. This flap was taken from the forehead, close to the hair-line, and the pedicle was returned to the temple and the forehead grafted after the flap had healed in place. *B* and *D* show the result of this operation. Note that the site that furnished the flap is well hidden by the hair. This correction relieved the tearing, which was the patient's chief complaint.

Because of its bulk, a pedicle flap carrying skin and subcutaneous tissue is not suitable for surfacing the orbicularis muscle, but such a flap may be absolutely necessary when the loss is greater than skin depth (figs. 5 and 6). Where the droop is due to paralysis of the orbicularis palpebrarum, a flap of stiffer supporting tissue sutured into an incision made below the tarsal border will best serve (fig. 7), though, for a slight droop, the postauricular full thickness free graft may suffice. The most appropriate flap for the foregoing method is obtained from the forehead just below the hairline, and is carried down on a pedicle that has its base at the zygoma nourished by the temporal artery.

Fig. 8.—*A* shows the condition that followed the accidental severance of the seventh nerve within the parotid gland, plus an unsuccessful attempt to find and suture the divided pes. Note that the right brow has slumped down of its own weight and the lower lid from the weight of the paralyzed cheek. Note that the right side of the nose and that of the mouth both share in this displacement. *B* shows the appearance after the left half of the face had been drawn up by strips of **fascia lata** which were looped through the tissues subcutaneously in various places to support the weight of the flaccid cheek and to oppose the overactivity of the corresponding muscles of the other side. At a subsequent step we also removed a strip of facial tissue from the hair-line of the forehead and from in front of the ear, followed by suture (Blair, V. P.: Further Observation upon the Compensatory Use of Live Tendon Strips for Facial Paralysis, Ann. Surg. **92:** 694 [Oct.] 1930; Notes on the Operative Correction of Facial Palsy, South. M. J. **19:** 116 [Feb.] 1926). Closure of the eye was improved chiefly from elevating the lower lid with these strands, but it is noteworthy that the upper lid now comes down a little farther than previously. This may give great subjective relief to the eye.

Fig. 9.—In *A* the lower lid is drawn down and everted by the traction of the scar from an acid burn in the cheek below. The correction shown in *B* was obtained by removing the scar on the cheek, which allowed the depressed eyelid to go up into place, and by filling the defect with a chest flap that had been prepared previously.

If it is a paralysis of the cheek that drags the lid downward, this can be relieved somewhat by supporting the tissues of the face with strips of fascia lata

1. This method of applying the graft was developed by Esser, Gillies, Waldron and others.

(fig. 8), but, if it is a scar from a loss in the cheek, then repair of the cheek is indicated (figs. 9 and 10). If the lid is drawn by the contraction of a vertical scar, this, in most instances, can be permanently relieved only by throwing a flap transversely across the path of the offending scar. This can be done by taking a vertical flap from alongside the scar and suturing it into a transverse incision made on the opposite side and at the level of the base of the pedicle. Whether the pedicle is placed at the lower or the upper end of the flap, whether the flap is to be sutured into the lid itself (figs. 11 and 12) or into the cheek below (fig. 13) will depend on the extent and location of the scar.

If the lid is drawn down by the loss or displacement of the orbital border, it may be raised by building up this

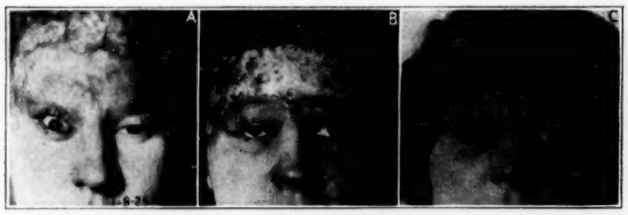


Fig. 10.—*A* shows the distortion of both upper and lower right lids and a less amount on the left side, from traction of a scar that resulted from a complete industrial loss of the scalp, which included the covering of the forehead and the eyebrows. The upper lids had been spontaneously drawn up by the scar partially to cover the denuded frontal region. The correction shown in *B* came from making an incision from ear to ear at the edge of the natural frontal hair-line, repositioning the displaced lids and filling the remaining defect with a full thickness skin graft from the lower part of the abdomen, which measured approximately 2 by 9 inches (5 by 22.8 cm.). *C* shows the patient wearing a wig that comes low down to hide the absence of eyebrows. There was not enough scalp remaining to furnish brow grafts. *B* shows the forehead graft in place.

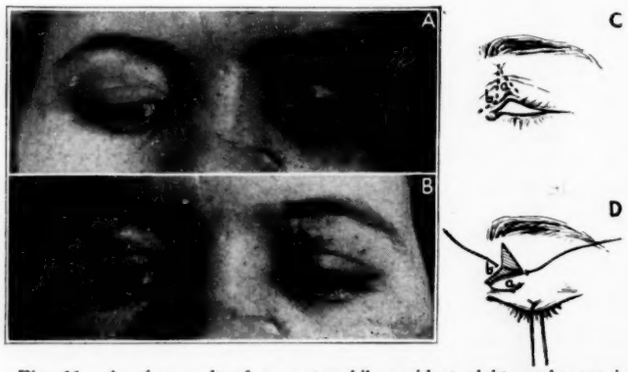


Fig. 11.—As the result of an automobile accident eight weeks previously, this young woman had several scars from facial cuts, one penetrating deeply in a vertical direction through the inner half of the left upper lid from the brow to the tarsal border. When she looked downward, the contraction caused the distortion shown in *A*. The correction shown in *B* was obtained by the skin incision shown in *C*, the mesial vertical stroke corresponding to the original scar. The flaps were raised, and enough of the underlying scar was removed to allow relaxation and to permit *a* and *b* to be switched as shown in *D*, and the wounds closed with silk sutures.

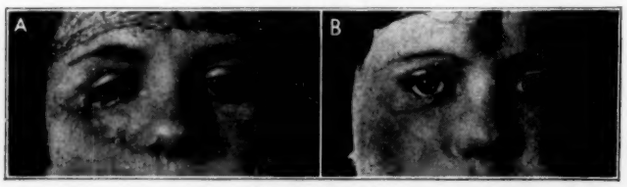


Fig. 12.—*A* shows distortion of the lids from laceration in the cheek following spontaneous closure of the original wound. In this case repair of the cheek was accomplished by excising the visible scar and then undermining and drawing the borders of the defect together with buried split silk sutures. Most of the undercutting was confined to the upper inner border, while the lower border was freed just enough to release the turned-in edge, but not enough to disturb its fixation. In this way we were able to use this lower oblique border as a foundation on which to rest the mobilized upper border when it was sutured into the desired position. Before suturing, the upper border was lengthened by removing an elliptic strip from the portion of the cheek, and it was sutured in such a way as to push the lower lid and outer canthus upward. This, at the time, gave a good correction, but the patient was told to return for care for the drawing down that would recur from subsequent contraction of the scar on the cheek. Owing to the presence of a deep transverse scar on the temple, at the level of the orbital floor, it was not practicable to obtain a vertical flap from this area, so, perforce, a transverse flap was thrown from the upper to the lower lid. A flap from the temple would have been more effective.

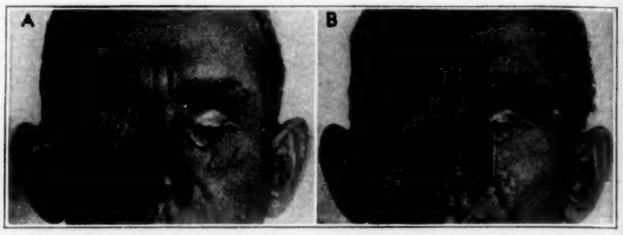


Fig. 13.—*A* shows the vertical cut that sliced completely through the lower lid, opening the globe, and continued down through the cheek for a considerable distance. The eye had been removed elsewhere. It also shows outlined the vertical flap that in this case was taken from below the lid and thrown transversely, after opening and resuturing the lid itself. *B* shows the correction obtained, the artificial eye not yet being in place.

Fig. 14.—*A* depicts the lack of development of the malar eminence and the outer part of the infra-orbital border following the removal of a tumor from this region in early infancy. Through the original scar we freed the lower lid and the tissues of the depressed area from the underlying bone, and inserted a piece of costal cartilage that rounded out the contour and brought the tarsal edge almost up to its proper level as shown in *B*.

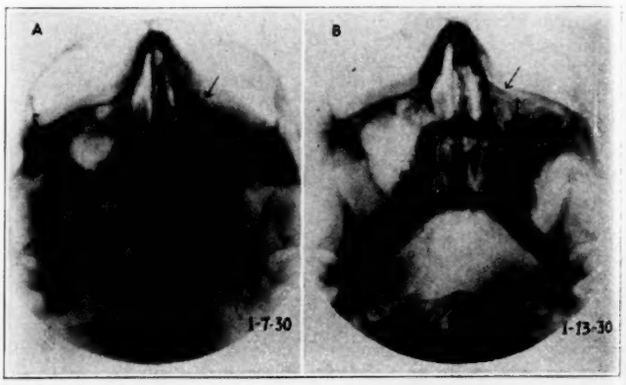
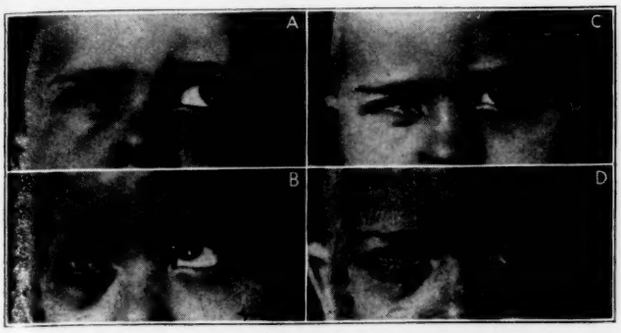


Fig. 15.—*A* shows a recently depressed fracture of the left lower orbital border. On comparing this with its fellow, it will be seen that the whole of the zygomatic portion was displaced. There were marked diplopia and flattening of the cheek with the lower lid drawn slightly downward. The most accurate and effective approach to the displaced bone is by opening the antrum with a chisel and prying the buccal wall and overlying zygoma foward as an osteoplastic flap. If it is only the zygomatic bone that is displaced, the impaction can be pried loose and the border brought forward and upward by means of a large, curved urethral sound. If there is suspicion that the floor of the orbit is shattered, it may be safer to explore with the finger. When the fragments have been properly adjusted without removing any attached pieces, the new contour is maintained by not too tightly packing the antral cavity with a folded strip of washed iodoform gauze that is lightly impregnated with balsam of Peru and wrung dry in a towel. This strip is folded in methodically so that it can be withdrawn twenty-one days later without disarranging the newly placed fragments of bone, and a short piece of small split rubber tubing is fixed in place through which a cleansing fluid is instilled at intervals after the third day. Too great overcorrection of the floor can be guarded against by invaginating the lid beneath the globe with the tip of the finger. In the absence of severe inflammatory reaction this correction can be done within three or four weeks after injury, preferably in the second week. It is almost impossible to obtain the same results after bony union has occurred. *B* shows the orbital border slightly overcorrected and the gauze pack in place. The latter is removed twenty-one days later, and the pressure on the cheek spontaneously closes the antral opening.

bony ridge with a piece of costal cartilage after dividing the lower attachment of the palpebral fascia (fig. 14). If the border is simply depressed as the result of recent fracture, it can be pried upward either from within the antrum or by hook or chisel inserted through the skin (fig. 15), but, in an old fracture, it may be necessary to chisel the border free and insert a bone or ivory wedge to maintain the new position.



E

ig. 16.—*A* and *B* show a condition that resulted from the spilling of powdered lye on the face and into the left lower conjunctival sac when the patient was 14 months old. At 3 years he had been operated on in an attempt to release the lower lid from the globe. The lower lid was found to be adherent to the sclera in its outer three-fourths. Internal to this there had been a destruction of the border which had allowed the skin of the lid to become directly adherent to the cornea and sclera. External to this, almost up to its tarsal border, the lower part of the cornea was covered with a white scar. Evidence of the adhesion can be seen in comparing *A* with *C*. In attempts to "look up" before the globe was liberated, the right brow remained almost stationary, but the left was elevated. After the operation, as can be seen in *C*, both brows moved upward symmetrically, and the distortion of the lower tarsal border was now almost entirely relieved. The correction shown in *C* and *D* was accomplished by first doing an external canthotomy and dissecting the lid from the sclera and from the infra-orbital ridge for a depth of 22 mm., at the bottom of which a stab drain was made through the cheek. The orbital fat bulged into the new sulcus. A rather flat "stent" of paraffin was molded in the fingers to fit the convexity of the globe and fill this sulcus. It was covered with a thin skin graft cut from the inner surface of the upper arm and slipped into the newly made bed, the extent of which is indicated in *E*. The canthotomy was closed, the lids were united by two silk sutures, and both eyes were bandaged. Seven days later, under an anesthetic, the paraffin form was removed, and it was found that the graft had taken throughout with the exception of a "spot" 2 by 4 mm. at the upper margin of the graft on the sclera and a smaller area in the center of the upper limit of the graft on the lid. There still remained a narrow web of scar at the inner limit of the newly grafted sulcus separating this from a small pouch of the original sac that had persisted at the inner canthus. This could easily have been clipped. It would appear from examining *C* that there was still some limitation to external rotation, but ordinarily this would be expected to improve with use. These photographs were taken two days after removal of the stent, the child leaving town the next day. Two weeks later the father wrote, "Eye doing well, no adhesion of the globe but lid not yet tight against globe. Irrigating sac once a day with saline and filling it 2 times a day with white vaselin." A letter received one month later from Dr. Robert Caldwell, who referred the case, reported that the boy was doing well, but further reports from the father were not satisfactory. The last we had was eight months after operation, stating that at intervals "the skin on the eye was raised up" and there was a flow of pus, but that between these occurrences it looked very well. Based on analogous occurrences in other sites, the probable explanation is that there was an island of epithelium remaining buried in the scar beneath the graft and acting as a nidus of infection. In other areas we have been able permanently to eliminate such recurrences only after dissecting out the focus.

Where the separation of the lid from the globe is due to an enophthalmos, but with the globe not fixed in the depth of the orbit, it can be brought forward by inserting cartilage deeply at the periphery of the orbit; however, if the globe cannot be experimentally brought forward by injecting physiologic solution of sodium chloride into the depth of the orbit, then the lids might be allowed to move back a certain amount by taking away some of the outer border and adjacent orbital wall.

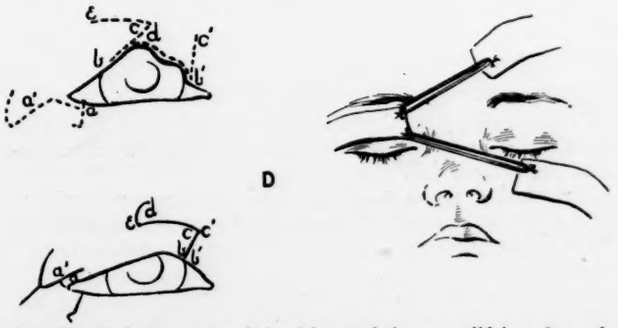
Limited losses of conjunctiva can be compensated for by drawing on contiguous mucosa, and, for larger areas, successful free grafts have been obtained from the mouth, but for the latter type we have contented ourselves with the use of a thin split graft. Usually these are cut from the inner surface of the thigh and made sufficiently thin to preclude subsequent growth of hair, but, when the graft is to be applied on the sclera, or sclera and cornea, it is taken from the inner surface of the arm (fig. 16).

A small partial loss of the full thickness of the lid can be filled in by approximating the borders of the defect and supplementing somewhat from the contiguous skin surface (fig. 17). In a case in which the vertical height of one lid is contracted and its fellow has become more than proportionately elongated, it may be possible to transfer a section from one lid into its fellow, but ordinarily we hesitate to damage a remaining good lid. More extensive losses down to or including the conjunctiva require transfer of pedicle flaps (fig. 5). If the mucous lining also has been missing, we have replaced it by a free skin graft.

For simplicity of presentation, we have referred mostly to defects of the lower lid, but the same rules generally apply for both. While a paralytic sagging of the lower lid can be corrected, we have never tried to restore the reciprocating action between the orbicularis palpebrarum and the levator palpebral muscle when the motor nerve supply of the former muscle has been permanently destroyed, and we have never thought that transplantation of muscle would be a practical solution for this. The cornea can be somewhat protected and much of the discomfort relieved by raising the lower lid, by either inserting a flap or swinging it up with a fascial strand (fig. 8).

C

E



D

Fig. 17.—*A* shows a congenital coloboma of the upper lid in a 3 months old baby. The dotted lines in *C* represent cuts that mostly slice through the full thickness of the lid or down to the periosteum. The part *b-d-b'* was a denuding incision. In the suturing, the border *b-c* was applied to *b'-c'*, and the flap *d* was, with some trimming, fitted above the flap *c*. The flap *a*, carrying the tarsal edge and lashes, was used to border the new part of the upper lid, *a'*. *D* is a diagrammatic representation of these adjustments. *E* shows the plan that can be used for taking the tension off of the suture line *b-c*. Pieces of bandage gauze, held to the repaired lid with collodion, to the cheek and to the forehead on the opposite side are connected by a light rubber-band pull. In the repair of conjunctival cuts that overlie the cornea, we use figure of eight 000 chromic gut sutures, tied on the surface of the skin. *B* shows the result twenty months after the operation. At a later period some adjustment was made to give a more natural outer canthus. Should it still be needed, the contour of the border of the lid can be adjusted more advantageously later than it could have been at the time this picture was taken.

Paralysis or damage of the levator palpebrae causes a droop of the upper lid best corrected by connecting the tarsus to the occipitofrontalis muscle by a loop of live autogenous tendon.

Loss of, or abnormal traction on, either of the palpebral ligaments will permit or cause dislocation of the corresponding canthus, which means distortion of the lid. This can be corrected, but space does not permit following this particular phase.

We have been able to get an irregular straggling growth of hair from a brow transplant made to replace lost eyelashes, but not sufficiently good to be of practical use; one can, however, switch a part of the hair-bearing tarsal border from one lid to the other. It is also practicable to take a hair-bearing graft from the scalp to replace a lost eyebrow, but it will have to be plucked and trimmed forever afterward.

XANTHOMATOSIS

THOMAS D. SPARROW, M.D.
AND
L. M. FETNER, M.D.
CHARLOTTE, N. C.

So far, there have been three epochs in the present understanding and evaluation of xanthomatosis: the early description by Hand,[1] Schüller [2] and Christian,[3] its classification and pathologic interpretation by Rowland,[4] and its treatment by the roentgen ray, as described by Sosman.[5] The papers by Rowland and Sosman cover the subject in detail and contain a complete bibliography.

After thoroughly culling the literature, Sosman [6] was able to find the reports of forty-five cases of xanthomatosis. He suggested that there are probably any number of cases unreported or masked under some other diagnosis. Six cases under his care had been successfully treated with x-rays. He found that five other authors had reported good results with roentgen treatment.

The following case is reported because of the limited number now on record in the literature and because of the eminently satisfactory results obtained by radiation therapy:

R. M., a girl, aged 2 years, was referred to us for surgical consultation because of a swelling on the right side of the head, resulting from a fall.

The mother stated that the child had been perfectly well until about three months before. At that time, while carrying the child in her arms, she missed a step and fell, striking the child's head against the cement walk. The baby did not lose consciousness but vomited several times that afternoon. There was no abrasion or laceration of the scalp, but a swelling was noted over the right parietal region. This swelling became much smaller about one week after the accident, but it never entirely disappeared. About two months before admission it began to increase in size.

The patient is the third child of healthy, normal parents. Her birth was uncomplicated and at term. She was breast fed for the first year. For the past year her diet has been high in carbohydrates, consisting chiefly of milk, rice, grits and mush. She drinks water freely, but there has never been any tendency to polyuria or polydipsia. At the present time, except for a rather severe cold and the tumor over the right parietal region, she appears perfectly healthy.

There are two important and interesting events in her past medical history. About one year ago she had an attack of whooping cough and lost the sight of her right eye from an infection. Six months ago she had a very severe gingivitis, and her teeth began to decay rapidly. There was nothing of importance in the family history.

The patient was fairly well developed, weighing 27 pounds (12.2 Kg.). Over the right frontoparietal region about 3.5 cm. from the sagittal suture there was a soft, fairly well circumscribed swelling about the size of the end of the thumb. It did not fluctuate and there were no pulsations. It was not expansile and it did not appear to be attached to the bones. The eyes showed no suggestion of exophthalmos. There were no extra-ocular palsies. There was a cataract in the right eye. The left eye was normal. Examination of the throat was negative. The teeth were in a bad state of decay. No loose teeth were found. The gums appeared normal. The heart, lungs and abdomen were normal. The extremities were normal except for a marked talipes planus.

The first examination of the urine was negative except for a slight trace of sugar. The blood sugar was found to be 91 mg. per hundred cubic centimeters. Numerous subsequent examinations of the urine were entirely negative. The blood count was: red blood cells, 5,550,000; white blood cells, 22,400; hemoglobin, 85 per cent; polymorphonuclears, 60; lymphocytes, 31; large mononuclears and transitionals, 5; eosinophils, —. The blood cholesterol was 162 mg. per hundred cubic centimeters. The blood Wassermann reaction was negative.

A right lateral film of the skull (fig. 1) showed a smooth, thin cranial vault with no signs of increased pressure, separation of the sutures or unusual calcification, but there was an

Fig. 1.—Defects in the membranous bones.

area of destruction measuring approximately 3 cm. in diameter, with some evidence of bone reaction around it. This was the right parietal bone just posterior to the coronal suture and was about 4 cm. below the vertex. Another area of destruction was seen in the right parietal region. This measured a little over 1 cm. in diameter and was about 1 cm. above the lambdoid suture and about 3 cm. from the posterior portion of the skull. The sella appeared normal in size, shape and position. An anteroposterior film of the lumbar vertebrae, pelvis, hips and femurs showed no evidence of disease or injury.

The child received four high voltage therapy treatments of 140 Kilovolts, 10 milliamperes, at 40 cm. distance, with a filter

1. Hand, A.: Defects of Membranous Bones, Exophthalmus and Polyuria in Childhood; Is It Dyspituitarism? Am. J. M. Sc. **162:** 509 (Oct.) 1921.
2. Schüller, Arthur: Ueber eigenertige Schadeldefekte in Jugenalter, Fortschr. a. d. Geb. d. Röntgenstrahlen **23:** 12, 1915-1916. (Quoted by Sosman.)
3. Christian, H. A.: Defects in the Membranous Bones, Exophthalmus and Diabetes Insipidus: An Unusual Syndrome of Dyspituitarism, M. Clin. North America **3:** 849 (Jan.) 1920.
4. Rowland, R. S.: Xanthomatosis and the Reticulo-Endothelial System, Arch. Int. Med. **42:** 611 (Nov.) 1928.
5. Sosman, M. C.: Xanthomatosis (Schüller's Disease; Christian's Syndrome): Report of Three Cases Treated with Roentgen Rays, Am. J. Roentgenol. **23:** 581 (June) 1930.
6. Sosman, M. C.: Xanthomatosis (Schüller-Christian's Disease, Lipoid Hystiocytosis), J. A. M. A. **98:** 110 (Jan. 9) 1932.

of 1 mm. of aluminum plus 0.25 mm. of copper for five minutes. These were given at five day intervals. A marked improvement was shown by the decrease in the size of the tumor and the improvement in the defects in the bone (fig. 2). No further treatments were given, but at present there is no tumor and the bone defect cannot be felt. The child appears to be in perfect health.

Most of the cases reported have presented the triad of symptoms described by Christian and have been captioned "defects in the membranous bones, exophthalmos and diabetes insipidus." The exophthalmos

Fig. 2.—Improvement after four roentgen treatments.

frequently does not occur and diabetes insipidus not always. A history of antecedent infections in the ear or some of the xanthomas, trauma, and gingivitis with loosening of the teeth occurs too frequently to be ignored. Rowland contends that the xanthoma cell is of reticulo-endothelial origin, infiltrated with lipoid, and that all the varied manifestations of xanthoma can be brought back to the single pathologic principle that certain substances infiltrate the reticulo-endothelial system. Xanthoma lesions are the hyperplastic reaction of the reticulo-endothelial system, resulting from the infiltration of lipoids in excess in the body fluids. If this is true, it is interesting to conjecture the ultimate results in these cases. The roentgen ray undoubtedly improves the objective manifestations of this fault in lipoid metabolism, but one cannot conceive of the whole reticulo-endothelial system being affected by the local application of the roentgen ray. Are the disappearance of the tumor and the healing of the defects in the membranous bones evidences of a complete cure? As long as there is an excess of the lipoids in the body fluids in the case just reported, so long should there be a hyperplastic reaction of the reticulo-endothelial system, bone destruction and tumor formation. If Rowland is correct, and his work is most convincing, one should expect repeated manifestations of the disease until some fundamental change has occurred in the lipoid metabolism. Sosman has found that spontaneous remissions occur, but the treatment with diet and endocrine extracts has been ineffectual. One cannot study the literature on this subject and believe that the last chapter on xanthomatosis has been written.

210 Professional Building.

VALVULAR PNEUMOPERITONEUM

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When as a result of perforation of an intra-abdominal division of the gastro-intestinal tract a pneumoperitoneum develops, the symptoms produced by the air per se are generally of negligible clinical importance. The freedom from manifestations when a moderate quantity of air alone is introduced into the peritoneal cavity is exemplified by the innocuousness of artificial pneumoperitoneum performed for diagnostic or therapeutic purposes. The impressive clinical picture produced as a result of rupture of a gas-containing viscus, as for instance the stomach, is ordinarily one of peritonitis due practically entirely to the extravasation of liquid material. The escape of air, although possessing a high coefficient of diagnostic significance,[1] is customarily of little or no importance from the standpoint of the symptomatology it evokes.

In exceptional instances the spontaneous accumulation of intraperitoneal air instead of constituting an insignificant element assumes the leading rôle in the production of clinical manifestations. Indeed, in certain cases practically all the symptoms and signs are directly attributable to the free air contained in the abdominal cavity. These exceptional cases are characterized by the escape mainly or exclusively of air in exceedingly large quantities. The excessive quantity of intraperitoneal gas produces inflation of the abdomen which, when marked, leads to upward displacement of the diaphragm and consequent respiratory embarrassment. The most prominent sign, namely, ballooning of the abdomen, constitutes such a striking feature of the disorder that German writers have designated the condition "tension" (Spannungs-) pneumoperitoneum.

MECHANISM

Tension pneumoperitoneum was thought by early writers (Falkenburg,[2] Fründ[3]) to be due to infection by a gas-producing micro-organism. On this account the term "Gasperitonitis" was proposed and was accepted by Coenen.[4] In 1917, however, Oberst[5] reported a case of tension pneumoperitoneum in which evidence of peritonitis was lacking, the intra-abdominal air being derived from a traumatic perforation of the stomach. This author assumed the mechanism of the closure of the hole to be a valvular one and believed that with each gastric contraction gas was forced into the abdominal cavity. Later, Brunzel[6] reported two cases due to ruptured ulcer in which the liver apparently acted as a valve, permitting the air to leave the stomach but not to reenter it. Subsequent writers, both in Holland and in Germany, observed additional examples that substantiated the mechanical explanation of tension pneumoperitoneum and served to cast grave doubt on the infectious theory. At present, the ten-

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From the University of Illinois College of Medicine, Department of Medicine, and the Cook County Hospital.

1. Vaughan, R. T., and Singer, H. A.: The Value of Radiology in the Diagnosis of Perforated Peptic Ulcer, Surg., Gynec. & Obst. **49**: 593-599 (Nov.) 1929.
2. Falkenburg, C.: Ein Fall von Gasansammlung in der freien Bauchhöhle, Deutsche Ztschr. f. Chir. **124**: 130-136, 1913.
3. Fründ, Heinrich: Gasbildung in der freien Bauchhöhle, Deutsche Ztschr. f. Chir. **130**: 585-592, 1914.
4. Coenen, H.: Der Gasbrand. Die Gasperitonitis, chapter 24, Ergebn. d. Chir. u. Orthop. **11**: 130-136, 1913.
5. Oberst, Adolf: Das Spannungspneumoperitonaion, Zentralbl. f. Chir. **44**: 354-355 (April 28) 1917.
6. Brunzel, H. F.: Zur Frage des Spannungspneumoperitoneum, Zentralbl. f. Chir. **44**: 689 (Aug. 4) 1917.

dency on the part of most writers is to regard valvular closure of a perforation as the sole cause of tension pneumoperitoneum. The fact that several authors (Stegemann,[7] Michejda,[8] Bergemann[9] and Kudrnáč[10]) have recently reported cases in which a mechanical etiology was not apparent does not justify the assumption of a bacterial origin of the gas. It is far more

Fig. 1 (case 1).—Pneumoperitoneum due to a perforated peptic ulcer, as seen with the patient in the left lateral position. The accumulation of intraperitoneal air has separated the liver (*l*) from the right lateral abdominal wall (*w*) and from the diaphragm (*d*). The simultaneous escape of liquid gastric content has led to an associated peritonitis indicated in the roentgenogram by gaseous distention of the intestine (*i*).

reasonable to assume the presence of a perforation or fistulous communication that was overlooked.

In principle the mechanism of a valvular type of pneumoperitoneum is similar to that which obtains in valvular pneumothorax. The intimate details of the dynamics involved, which are discussed at length by Wildegans[11] and Suermondt,[12] vary somewhat in the different cases. However, in all instances the essential feature is the valvelike arrangement which permits the escape of air with changes in pressure within either the abdominal cavity or the gastro-intestinal tract. Alterations in the intra-abdominal pressure are generally related to the respiratory cycle. As the distinguishing feature between what has been termed tension pneumoperitoneum and other types is the valvular mechanism and not excessive distention, which may be lacking (as in case 2), I propose the designation valvular pneumoperitoneum.

ETIOLOGY

Quite a variety of causes of valvular pneumoperitoneum have been described. Some of the lesions were actually demonstrated, while others are assumed to have existed. Perforated peptic ulcer was responsible in the instances recorded by Koch,[13] Brunzel[6] (two cases), Schnitzler[14] (two cases), Willemer,[15] Wilmanns[16] and in one case to be discussed here. Perforation of a stercoral (distention) ulcer was the probable cause in the patients observed by Spangenberg,[17] Boltjes,[18] Lieblein[18] and also in three of my four patients with valvular pneumoperitoneum. Two cases resulted from accidental injury to the peritoneum during retroperitoneal operations (Noordenbos,[13] Oidtmann[13]). Oidtmann recorded also an instance of tension pneumoperitoneum due to a ruptured typhoid ulcer and another caused by perforation of an abscess of the ascending colon. The case reported by Oberst,[5] in which a fragment of a grenade presumably perforated the stomach, has been mentioned. A somewhat similar example was described by Bergemann[9] in which the fragment penetrated the anterior abdominal wall. The resulting hole was occluded by a flap of omentum which had a valvelike action. A small perforation of the margin of an intestinal fistula was reported by Suermondt.[12]

SYMPTOMS

The escape through a perforation of nothing but air fails to give rise to symptoms and signs of peritoneal inflammation. When the amount of intraperitoneal gas is limited, the subjective symptoms are quite insignificant. As the escaped air increases in quantity, however, the intra-abdominal pressure reaches a point at which symptoms appear. The patient complains of an increasing sense of fulness and tension and presents a noteworthy degree of inflation. The physical signs in the fully developed case explain the choice of the

Fig. 2 (case 4).—Appearance of the abdomen with the patient in the supine position, in a case of valvular pneumoperitoneum. The liver (*l*) and spleen (*s*) are sharply outlined and separated from the diaphragm (*d*) by a wide zone of free air. There is almost a complete absence of intestinal gas (compare with figure 1).

term "Spannungs" (tension) pneumoperitoneum proposed by German writers. The abdomen is prodigiously enlarged and assumes the form of a barrel. Tympany is obtained even in the flanks. In the advanced stage, labored respiration together with

7. Stegemann, H.: Gasperitonitis, Arch. f. klin. Chir. **123**: 523-530, 1923.
8. Michejda, K.: Ein Beitrag zur Frage der sogenannten Gasperitonitis, Zentralbl. f. Chir. **54**: 1871-1875 (July 23) 1927.
9. Bergemann: Ueber Spannungspneumaabdomen, Zentralbl. f. Chir. **56**: 2674 (Oct. 19) 1929.
10. Kudrnáč, J.: Ein Fall von Gasperitonitis, Zentralbl. f. Chir. **57**: 260-262 (Feb. 1) 1930.
11. Wildegans, H.: Ueber den intraperitonealen Druck, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **37**: 308-325, 1924.
12. Suermondt, W. F.: Spannungspneumoperitoneum, Deutsche Ztschr. f. Chir. **222**: 125-133, 1930.
13. Quoted by Suermondt (footnote 12).
14. Schnitzler, Julius: Zur Kenntnis des Gasperitoneum, Wien. med. Wchnschr. **31**: 987-989 (July 27) 1929.
15. Willemer, W.: Spannungspneumoperitoneum beim Ulcus ventriculi perforatum, Zentralbl. f. Chir. **56**: 2062-2063 (Aug. 17) 1929.
16. Wilmanns: Ein Fall von "Gasperitonitis," Zentralbl. f. Chir. **57**: 1394-1396 (June 7) 1930.
17. Spangenberg, J. J., and Munist, L.: Spontanes Pneumoperitoneum, Zentralorg. f. d. ges. Chir. **44**: 696, 1929.
18. Lieblein, Viktor: Zur Genese des Spannungspneumoperitoneum, Med. Klin. **27**: 239-243 (Feb. 13) 1931.

cyanosis and tachycardia appear, owing to the upward displacement of the diaphragm. When the exit of air is accompanied by the escape of liquid content from the gastro-intestinal tract, the usual signs of a perforative peritonitis appear. The extent, intensity and duration of the peritonitis depend chiefly on the quantity of extravasated material (Singer and Vaughan [19]).

DIAGNOSIS

The recognition of valvular pneumoperitoneum at a time when the distention is marked is a relatively simple matter if this possibility is borne in mind. The barrel-shaped abdomen in the presence of comparative comfort, the lack of vomiting, obstipation and pain, and the persistence of peristaltic sounds serve to differentiate the condition from intestinal obstruction, with which it is most frequently confounded. The simplest and most reliable method of diagnosis is, however, with the roentgen ray. The entire abdomen appears radiolucent, except for the solid structures which stand out in bold relief (fig. 2). In nonvalvular pneumoperitoneum, as for instance in peptic ulcer, the distention is seen to be due to inflation of the intestinal loops rather than to the intraperitoneal air (fig. 1).

REPORT OF CASES

CASE 1.—P. J., a white man, aged 43, was admitted to the surgical service of the Cook County Hospital, Nov. 14, 1928, at 10 p. m. His history and physical examination indicated that perforation of a peptic ulcer had occurred eighteen hours prior to admission. Fluoroscopic examination showed a limited amount of free air in the abdominal cavity and a moderate distention of the intestine. Operation was refused.

The following morning, November 15, the patient felt much improved, although the degree of distention was quite perceptible. A roentgenogram (fig. 1) showed that in comparison with the fluoroscopic picture of the preceding evening the amount of free air had greatly increased, whereas the quantity of intestinal gas had decreased.

The inflation gradually continued, so that two days after onset the abdomen had assumed the shape of a barrel. Vomiting had not occurred. A soap-suds enema had yielded formed stools. The respiratory and pulse rates became accelerated, and the patient complained of a "crowding" sensation in the abdomen. He was finally prevailed on to have an operation, which was peformed by Dr. Karl A. Meyer, fifty-six hours after the acute symptoms of onset.

When the abdomen was opened there was a gush of odorless gas and, simultaneously, collapse of the anterior abdominal wall. A pinhead sized perforation of the stomach covered over by the liver, which apparently had acted as a valve, was found to explain the clinical symptoms and observations. The perforation was closed. An uneventful recovery resulted.

CASE 2.—H. B., a white man, aged 70, entered the surgical service of the Cook County Hospital, Oct. 6, 1929. He stated that for several months he had suffered from symptoms referable to a low-grade obstruction of the sigmoid. Two days prior to entrance he experienced a sharp pain, which rapidly subsided and which was followed by increasing distention. No emesis had occurred, but constipation was noted. The patient, who was ambulatory, did not appear ill. The only significant physical sign was moderate abdominal distention.

Since repeated enemas during the course of the next three days failed to lessen the distention, a cecostomy was decided on and performed, Oct. 9, 1929, by Dr. Roger T. Vaughan. When the peritoneal cavity was entered there was a gush of odorless gas and collapse of the abdominal wall. The colon was only slightly distended. The cecum was hyperemic, lusterless and covered by organizing fibrin. The remainder of the peritoneum within view was smooth and glistening. Without attempting further exploration, cecostomy was performed.

Following recovery from the primary operation, the tumor of the sigmoid was explored through a left paramedian incision and found inoperable. No evidence of previous perforation or inflammatory reaction could be seen in this region. The genesis of the pneumoperitoneum was considered to be a ruptured stercoral ulcer of the cecum secondary to the constricting carcinoma of the sigmoid. The opening in the cecum was apparently of the valvular type until shortly after the patient's entrance, when the hole underwent spontaneous closure. On this account the degree of distention failed to reach excessive proportions.

CASE 3.—W. L., a white man, aged 63, was admitted to the Cook County Hospital, July 13, 1930, with a fractured femur, sustained as the result of a fall. July 22, nine days after admission, he complained of abdominal discomfort and vomited. Physically, there was evidence of moderate distention. A fecal impaction was assumed and enemas were ordered. In spite, however, of copious evacuation, the distention was uninfluenced. During the course of the next two days the abdomen grew progressively larger in spite of a series of successful enemas. Vomiting and pain did not recur.

When I first saw the patient, July 26, four days following the onset of abdominal symptoms, the abdomen had assumed the shape of a barrel. Diagnostic aspiration of the stomach yielded only a few cubic centimeters of clear fluid. The diagnosis of valvular pneumoperitoneum was made, due probably to a ruptured stercoral ulcer, occasioned by fecal impaction.

Operation was performed through a lower right rectus incision by Dr. Bernard Portis. When the peritoneal cavity was opened, there was a sudden forceful escape of odorless gas and simultaneously a proportionate reduction in the size of the abdomen. The loops of bowel were found to be collapsed and crowded against the posterior abdominal wall. The peritoneum was smooth and glistening, except in the region of the cecum, where a deposit of fibrin was encountered. After the fibrin had been wiped from the serosa of the cecum, a tiny perforation was exposed. This was sutured and the abdomen closed. The patient made an uneventful recovery from the abdominal operation. Before leaving the hospital, however, he suffered from a second attack of fecal impaction, which disappeared promptly after a series of enemas.

CASE 4.—V. C., an emaciated man, aged 58, was admitted to the Cook County Hospital just before midnight, Nov. 9, 1931, with a history pointing to a chronic intestinal obstruction, which first manifested itself five months prior to entrance. A roentgen examination, undertaken by the patient's private physician, disclosed an obstructive lesion of the sigmoid. Seven days preceding admission the patient experienced sharp abdominal pain. The following day repeated vomiting occurred but ceased with the restriction of the intake of food or fluids. On the next day, November 4, which was five days before entrance, an appreciable increase in the size of the abdomen was noted. The abdominal swelling became progressively larger, in spite of enemas, and on this account the patient was ordered to the hospital. The last formed stool was passed thirty-six hours prior to admission.

There was a drumlike distention of the abdomen, with tympany even in the loins. The stomach, on aspiration, was found to be practically empty. An enema yielded a few fecal particles. The diagnosis was valvular pneumoperitoneum due to a perforation occasioned by a carcinoma of the sigmoid. Fluids were administered throughout the night, and the following morning operation was performed by Dr. John P. O'Donoghue. On the way to the operating room a fluoroscopic examination revealed a large accumulation of intraperitoneal air. A film (fig. 2) also was taken.

When the peritoneal cavity was opened, there was a sudden gush of odorless gas. In the distal portion of the sigmoid was a firm, annular, constricting tumor mass. No indication of an old or recent perforation could be discerned. A first stage Mikulicz operation was performed. The artificial opening functioned adequately, but nevertheless the patient became progressively weaker, and nine days following operation he died. Permission for an autopsy was not granted.

Postmortem inspection of the abdomen through the surgical incision disclosed thin, veil-like adhesions in the region of the cecum but an otherwise smooth, glistening peritoneum. The

19. Singer, H. A., and Vaughan, R. T.: The "Formes Frustes" Type of Perforated Peptic Ulcer, Surg., Gynec. & Obst. **50**: 10-16 (Jan.) 1930.

wound margins were infected. The tumor removed by cautery proved to be a scirrhous carcinoma. The lesion which led to the valvular pneumoperitoneum was assumed to be a perforated stercoral (distention) ulcer of the cecum. Its closure occurred following the operative procedure on the opposite side of the abdomen.

SUMMARY

A type of pneumoperitoneum is described in which the mechanism involved is a valvular one similar to that which exists in the chest in cases of valvular pneumothorax. The responsible lesion is generally a perforation of a gas-containing viscus or an abdominal fistula.

The clinical picture is dominated by excessive distention, which gives rise to a barrel-shaped abdomen. The symptoms are referable to the mechanical effects of the inflation. The diagnosis can be made readily from the symptoms. With the aid of the fluoroscope the condition can be recognized at a glance.

There have been twenty-four cases of "tension" pneumoperitoneum previously reported, all of which have appeared in either German or Dutch periodicals. The present report includes four additional examples, in the last two of which the clinical picture was sufficiently distinctive to permit recognition before roentgen examination was undertaken. These are the first cases to be recorded which were diagnosed clinically prior to operation.

1819 West Polk Street.

Clinical Notes, Suggestions and New Instruments

THYROIDECTOMY LATE IN PREGNANCY: REPORT OF A SUCCESSFUL CASE

DAVID POLOWE, M.D., PATERSON, N. J.

The patient who is the subject of this report was seen regularly from the second month of gestation. Late in the seventh month, acute symptoms of hyperthyroidism developed. A subtotal thyroidectomy was performed in the eighth month of gestation and she was delivered normally of a normal baby twelve days after the estimated term.

A brief analysis of the literature of the past twenty years reveals that this complication of pregnancy is relatively infrequent. About 600 cases have been reported singly or summarized in groups between 1913 and 1932. The incidence in goiter clinics is about 1 in 200.[1] Fahrni's [2] exceptional incidence of 1 in 5 should be noted. In maternity clinics the incidence is 1 in 13,000.[3] Inquiry among my colleagues reveals that it may never be seen in general practice, though it appears likely that the diagnosis may be occasionally missed.

All authors are agreed that medical treatment (rest, sedatives, iodine) should be first tried, though not all are agreed as to the dosage and effectiveness of the administration of iodine. In the present case, iodine appeared to make the patient worse.

The majority of authors appear agreed, especially in the literature of the past six years, that thyroidectomy early in pregnancy (prior to viability of the fetus) is a safe and rational procedure in the presence of severe thyrotoxicosis. Abortion is strongly condemned by some.[4]

Good surgical opinion appears to be divided as to whether obstetric surgery or thyroid surgery is the procedure of choice in thyrotoxicosis late in pregnancy.

1. Mussey, R. D.; Plummer, W. A., and Boothby, W. M.: Pregnancy Complicating Exophthalmic Goiter and Adenomatous Goiter with Hyperthyroidism, Collected Papers of the Mayo Clinic and the Mayo Foundation **18**: 544, 1926; J. A. M. A. **87**: 1009 (Sept. 25) 1926. Mussey, R. D., and Plummer, W. A.: Treatment of Goiter Complicating Pregnancy, ibid. **97**: 602 (Aug. 29) 1931. Clute, H. M., and Daniels, D. H.: Hyperthyroidism and Pregnancy, Am. J. M. Sc. **179**: 477 (April) 1930.
2. Fahrni, G. S.: Canad. M. A. J. **23**: 645 (Nov.) 1930.
3. Crotti, André: Thyroid and Thymus, Philadelphia, Lea & Febiger, 1918, p. 367; also edition of 1922.
4. Hyman, H. T., and Kessel, Leo: Studies of Exophthalmic Goiter and the Involuntary Nervous System: XIV. Relationship to Sex Life of the Female, J. A. M. A. **88**: 2032 (June 25) 1927.

REPORT OF CASE

Mrs. E. L. P., aged 30, a quintigravida, presented herself for examination, Sept. 23, 1931. Term was estimated at May 11, 1932. She had been married eight years, and her first, second and fourth pregnancies had resulted in normal deliveries. In her third pregnancy, miscarriage had occurred at six and one-half months from some unknown cause. One week before delivery in her fourth pregnancy, the patient began to cough. The cough persisted for three months after the delivery. During those three months she lost 30 pounds (13.6 Kg.). At a tuberculosis sanatorium the patient's heart and lungs were declared to be normal. Toward the end of the three months period the cough subsided, she felt better in every respect, and subsequently she recovered her lost weight.

Her mother died of diabetes mellitus at the age of 39.

Dec. 8, 1931, the patient began to cough. The cough was treated as a mild bronchitis, everything else having been found to be normal. The pulse was 84; the weight, 139 pounds (63 Kg.).

Feb. 22, 1932, the cough had persisted. Owing to the season of the year, it was still regarded as an ordinary cold. The pulse was 118; the weight, 151 pounds (68.5 Kg.).

March 3, the patient was coughing incessantly. The pulse was 120; the weight, 142 pounds (64.4 Kg.). A diagnosis of hyperthyroidism was made. Rest and compound solution of iodine (Lugol's solution), 5 minims (0.3 cc.) three times a day, were prescribed.

March 10, after medical and obstetric consultations, the patient was sent to the Paterson General Hospital for observation. Rest, sedatives and iodine were prescribed.

March 11, the basal metabolism was plus 158; the pulse, 140; the weight, 132 pounds (60 Kg.). Chemical examination of the blood gave normal results; hemoglobin was 55 per cent; the leukocyte count showed a shift to the left; the leukocytes numbered 22,200, the nonfilament percentage being 25 and the filament percentage 63.

March 14, a subtotal thyroidectomy was decided on after further consultation because of the distressing cough, continued loss of weight, nervousness and tachycardia. The operation was begun at 1:30 p. m. and closed at 3:30. Local anesthesia and ethylene and oxygen were used, the latter being administered by Dr. G. E. Tuers. The entire right thyroid lobe and about half of the left lobe were removed. The isthmus was not disturbed.

Preoperative and Postoperative Prenatal Observations

Date	Pulse	Weight, Pounds	Comment
9/23/'31	94	130	Right thyroid enlargement
11/.5/'31	104	133	
12/ 8/'31	84	139	Patient complains of cough
1/12/'32	114	145	Patient complains of cough
2/22/'32	118	151	Patient complains of cough
2/29/'32	...	142	Patient complains of cough
3/ 3/'32	...	...	Patient coughs incessantly
3/ 4/'32	124	138	Diagnosis, hyperthyroidism Patient coughs; acetone and diacetic acid in the urine
3/ 8/'32	135	...	
3/11/'32	140	132	Basal metabolism plus 158
3/14/'32	operation		Subtotal thyroidectomy
3/21/'32	104	133	Basal metabolism plus 33
5/23/'32	...	149	Patient delivered of normal baby

March 21, the patient was discharged from the hospital. The postoperative course had been uneventful. The basal metabolism was plus 33; the pulse, 104; the weight, 133 pounds (60.3 Kg.).

May 23, the patient weighed 149 pounds (67.6 Kg.) before delivery of a normal boy weighing 8½ pounds (3,855 Gm.).

June 1, the mother and the baby, both well, were discharged.

The accompanying illustration gives an idea as to the amount of thyroid tissue removed from the patient. *A* is normal, purple, noncystic, nonhemorrhagic, and has no gross fibrous connective tissue strands running through it. *B* is pathologic, white and cystic, and the cysts harbor many small blood clots. The larger cystic areas are heavily walled off by fibrous connective tissue strands. The arrows point to some of these strands.

Examination by Dr. C. M. B. Gilman revealed a normal left lobe. The right lobe showed some cystic changes with an occasional area of some lymphocytic infiltration. This infiltration was of very low grade. The characteristic histologic

picture was normal thyroid tissue with ample colloid material and normal cuboidal cells. There were no columnar cells. The pathologic diagnosis was low grade thyrotoxicosis with normal hypertrophy.

A cellular study on the removed thyroid tissue will be reported elsewhere.[5]

COMMENT

Coughing, continuous and exhausting, was the dominant symptom. It was so severe that one week before the operation the ninth left rib was fractured; about two weeks after the operation the tenth left rib fractured during a coughing spasm. The cough did not clear up satisfactorily until about three or four

Thyroid tissue removed from patient; × 1.25: *A*, normal, about half of the left lobe; *B*, cystic, all of the right lobe, cut longitudinally and opened like a book. Arrows point to heavy walls of fibrous connective tissue.

weeks postoperatively. Grossly, the right lobe did not appear to be large enough to ascribe to it the cause, by pressure, of the coughing. This has puzzled me deeply and I wish here merely to record that I feel that some other explanation must be found. Morphology and function, in this case, failed to jibe. Next in the order in which the symptoms impressed their severity on me were the restlessness and nervousness, the tachycardia, and the loss of weight. The patient lost 20 pounds (9 Kg.) between February 22 and March 14 (the day of the thyroidectomy). She regained 17 pounds (7.7 Kg.) between March 14 and May 23 (the day she was delivered normally of a normal baby).

Conservative measures failed us in this case. It was felt, after several consultations, that thyroidectomy seemed to offer the patient the best chance for recovery (*a*) because her preceding pregnancy had proved the inefficacy of even the normal termination of that pregnancy; (*b*) because the incessant coughing, the extreme restlessness, and the marked tachycardia coupled with the rapid loss of weight made it appear unlikely that she could weather the stress of labor, if indeed she could survive the thyroid storm that long (two months distant); and (*c*) because the mother desired more strongly than ever to preserve her child.

SUMMARY

A case of acute hyperthyroidism of the adenomatous type, which complicated the third trimester of pregnancy, was successfully treated by subtotal thyroidectomy. The patient was subsequently delivered normally of a normal baby twelve days after the estimated term.

5. Polowe, David, and Boone, I.: Cellular Studies on the Thyroid Gland of a Pregnant Human During Her Eighth Month of Gestation, to be published.

REDUCTION OF DISLOCATED SHOULDER: A NEW METHOD

JAMES W. SHUMATE, M.D., SAN DIEGO, CALIF.
Lieutenant (J. G.), Medical Corps, U. S. Navy

A. N. P., a gunner's mate on the U. S. S. *Hatfield*, reported to the sick bay on the U. S. S. *Whitney* with a history of tripping over a hatch combing and falling on his outstretched right arm. He complained of severe pain about his right shoulder, accompanied by partial loss of motion and malfunction of the right arm. Examination of the shoulder showed deformity, limited motion, a definite subacromial hollow and an inability to place his right hand on his left breast with the elbow held against the body wall. These observations, coupled with the palpation of the head of the humerus in the subglenoid fossa, made for a diagnosis of dislocation of the head of the humerus.

The patient was given one-fourth grain (0.016 Gm.) of morphine sulphate and the dislocation was reduced by the following method:

Several thicknesses of 3 inch gauze roller bandage were passed over the left shoulder and under the right arm of the operator and then about the semiflexed arm of the patient at the elbow, as shown in the accompanying illustration. The hands of the operator were then placed against the chest wall of the patient in such a manner that the thumbs could palpate the head of the humerus. Traction was afforded by the operator leaning backward strongly and pushing with his hands against the chest wall of the patient while, with the thumbs, the head of the humerus was pushed into its socket. Care should be taken to keep the bandage short enough so that the arm of the patient is held against the chest of the operator, that sufficient traction may be obtained. The morphine not only lessens the pain of the operation but is of primary importance in reducing the tension of the shoulder muscles.

In my opinion, this method of reduction possesses many advantages over those commonly employed, chief of which are:

1. It is much less painful and more effective than the method of Kocher.

2. It is simpler and easier than the traction method advocated by Wilson and Cochran and requires only one operator.

3. It is much more effective than the commonly used "foot in armpit" method and is safer in that there is less danger of injury to the soft parts.

Hands on chest wall, so that thumbs palpate head of humerus. Traction is afforded by operator leaning backward strongly.

In approximately eight cases which I reduced in this manner, no difficulty was experienced and each dislocation was reduced easily, quickly and with minimum pain to the patient.

CONCLUSION

I might add that under no circumstances should a reduction, by any method, be attempted in an elderly patient without a roentgen diagnosis, as an easily confused impacted fracture of the surgical neck of the humerus may be broken down, with the probability of a resulting nonunion and its subsequent removal of the head of the humerus and ankylosis of the shoulder joint.

A search of the literature has failed to reveal any similar method of reducing a dislocated shoulder, but mention should

be made of the fact that it was employed by Dr. Frank Clark, who at the time was a fellow intern at Kings County Hospital, Brooklyn.

U. S. S. *Jacob Jones.*

AN OPERATION TO RELIEVE PARALYSIS OF THE DELTOID MUSCLE

FRANK R. OBER, M.D., BOSTON

Paralysis of the deltoid muscle is probably the most common disability in the upper extremity following infantile paralysis. The disability may be permanent. Several procedures have been designed for its relief, the most satisfactory of which is arthrodesis of the scapulohumeral articulation.

Bradford, Legg, Mayer and others have advocated muscle transplants, some of which were attended with fair functional improvement. In these operations, either the trapezius or the pectoralis major muscle has been utilized.

In children arthrodesis is not particularly satisfactory, because the weight of the arm causes the humerus to bend downward either at the joint or at the epiphyseal line.

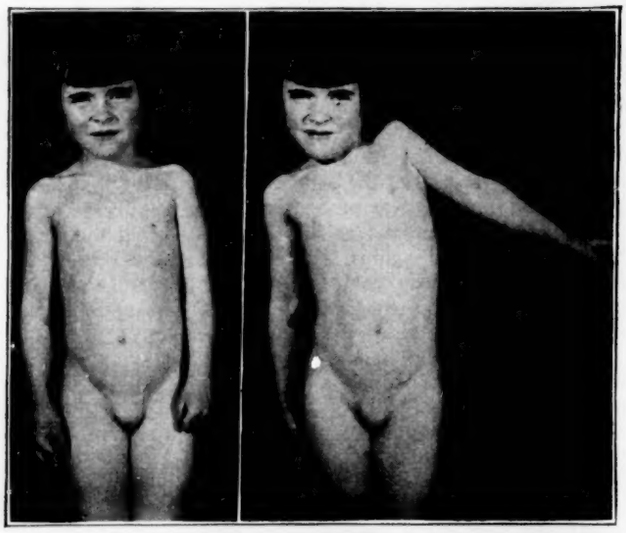


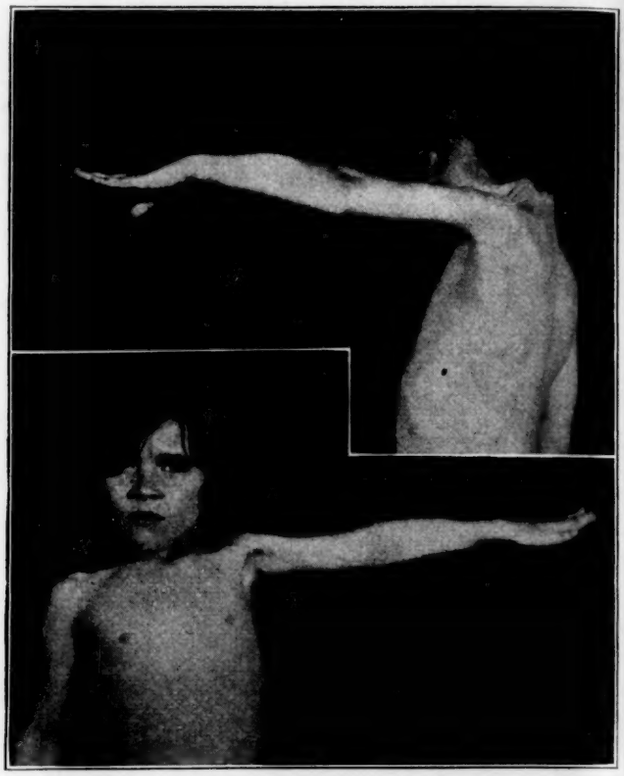
Fig. 1.—Before operation: Note extreme atrophy of deltoid muscle. Abduction is performed by the trapezius.

If there is complete paralysis of the deltoid and good to normal power in the biceps and triceps, I use these two muscles in the following manner:

1. A saber incision is made over the shoulder, the anterior leg extending down over the anteromedial aspect of the arm for three inches.
2. The coracoid process of the scapula and the short head of the biceps are exposed, the tendon of the biceps with a small piece of bone is dissected free from the coracoid process, and the muscle is cleared from above downward to the musculocutaneous nerve.
3. The long head of the triceps is exposed through the posterior leg of the incision, and its origin on the scapula with a small piece of bone is removed and the muscle cleared from the upper fourth of the humerus.
4. The tip of the acromion is exposed and osteotomized on the flat at the tip, the end being pried open.
5. The free end of the triceps is carried up over the deltoid and sutured into the bone flap at the posterior aspect of the acromion, and the biceps is carried up in a similar manner and sutured to the anterior end of the split acromion. No. 16 silk is used for suture material.
6. These two tendons are sutured together for a distance of one inch from the tip of the acromion. The wound is closed with silk and the arm is put up at right angles on a platform splint.

REPORT OF CASE

F., a white girl aged 7 years and three months, had acute poliomyelitis in June, 1927. The left arm and shoulder were involved. The patient came to the Harvard Infantile Paralysis Commission for treatment, Sept. 9, 1927, and has been carefully treated there since.



2. Three months after operation: function in the transplant.

April. 11, 1932, she was sent in to the Boston Children's Hospital for relief of the deltoid paralysis. Muscle examination showed a poor deltoid; i. e., one that would not function against gravity. The middle and lower trapezius showed fair power; i. e., function against gravity. The biceps showed good power, and all the other muscles in the arm were normal.

April 13, the operation that has been described was performed and a plaster spica was applied with the arm in horizontal abduction.

April 25, physical therapy was begun. On the fifteenth day after the operation the transplant began to contract slightly. On the twenty-second day, abduction could be initiated by the patient.

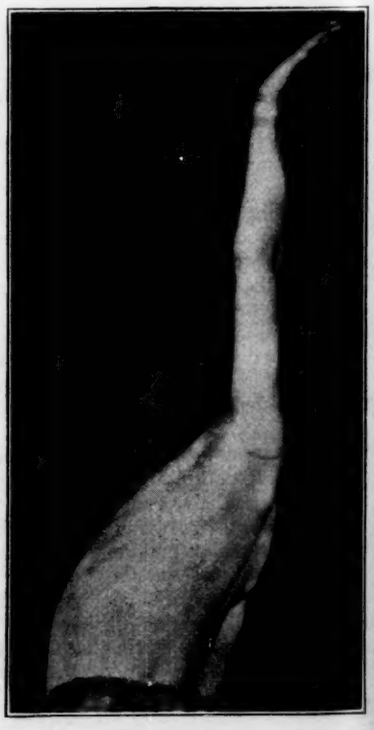


Fig. 3.—Elevation of arm.

July 13, there was good power in the transplants. The patient was able to raise the arm voluntarily against gravity and hold it in either the forward or the lateral position. She could also elevate her arm above her head.

234 Marlborough Street.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

H. A. CARTER, Secretary.

GOMCO SYRINGE STERL-CASE NOT ACCEPTABLE

The Gomco Syringe Sterl-Case, manufactured and submitted by the Gomco Surgical Manufacturing Company, Buffalo, N. Y., may be described as a hypodermic needle enclosed in a compact vest pocket carrying case resembling a fountain pen. By means of an alcoholic preparation the needle is said to be sterilized and ready to carry. The length is about 5¼ inches over all and ¾ inch in diameter. It weighs about 40 Gm.

In the advertising matter accompanying the hypodermic needle it is claimed that the needle itself is "rustless" and the syringe case offers a means of complete syringe sterilization.

Tests were made as follows: Without previously boiling or sterilizing the syringe, except as described in the advertising material, sterile broth culture medium was aspirated and reinjected into the culture tube. No growth was obtained, indicating that sterilization was adequate. Several repetitions of this gave the same results.

While the needle may be made of the so-called rustless steel, it nevertheless rusts and becomes unfit for use after being carried in the pocket case syringe for about a week. Renewals of the needles at such short intervals would be objectionable.

It is probable that most physicians would prefer to boil the syringe and to make sure of the patency of the needle by use of a wire obturator.

Because the needle rusts very readily and therefore becomes unfit for use, the Council on Physical Therapy declines to include the Gomco Syringe Sterl-Case in its list of accepted devices.

Council on Pharmacy and Chemistry

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING PRELIMINARY REPORT.

P. N. LEECH, Secretary.

THOROTRAST

Thorotrast was presented by the Heyden Chemical Corporation for consideration by the Council as a colloidal thorium dioxide preparation suitable for use in retrograde pyelography and for roentgen visualization of the liver and spleen by intravenous administration. This was first introduced by Radt.[1]

COMPOSITION

Thorotrast is claimed to be a stabilized thorium dioxide solution, containing 25 per cent by volume of thorium dioxide, ThO_2 (from 19 to 20 per cent by weight) and about the same amount of protective colloid (from 16 to 19 per cent by weight) said to be of a carbohydrate nature and further defined as a dextrin preparation. It contains as a preservative 0.15 per cent of methyl *p*-hydroxy benzoate. The addition of alcohol to Thorotrast results in flocculation with the liberation of hydrochloric acid.[2] The A. M. A. Chemical Laboratory has not so far reported on the product.

Despite the fact that the immediate toxicity of Thorotrast appears to be low, the Council believes that the manufacturer should be required to be more explicit with regard to the composition of the protective colloid under the terms of rule 1, especially as it is used intravenously. The intravenous dosage of the preservative, methyl parahydroxy benzoate, would be about 0.1 Gm., which, on the assumption that this compound partakes of the same toxicity as sodium benzoate, would probably prove innocuous; but the Council has no definite information on this point.

1. Radt, P.: Med. Klin. **26**: 1889 (Dec.) 1930; Deutsche med. Wchnschr. **56**: 2025, 1930; Verhandl. d. Deutsch. Ges. inn. Med. **43**: 443, 1931 (cited from Irwin).
2. Irwin, W. A.: Canad. M. A. J. **27**: 130 (Aug.) 1932.

NAME

The only claim that might entitle the Heyden Chemical Corporation to a proprietary name for colloidal thorium dioxide is the one that this firm was the first to produce such a product suitable for intravenous administration. The firm admits that colloidal thorium dioxide was available in Germany at about the time it introduced its first product, Umbrathor. So far as immediate toxicity is concerned, Thorotrast is suitable for intravenous administration, but as a considerably longer period must elapse before the remote toxicity may be ascertained with certainty, it appears that this claim cannot definitely be substantiated at the present time, and hence under the terms of rule 8 the Council believes a proprietary name cannot now be allowed, unless evidence is furnished that Thorotrast involves a fundamental improvement over other thorium preparations for use in pyelography and the like.

PROPERTIES

The firm claims that Thorotrast is miscible with body fluids in all proportions without flocculation. Irwin has observed definite flocculation in blood removed from an experimental animal from five to ten minutes after injection. This was still observable in blood removed up to forty-eight hours, after which visible particles were no longer discernible. The maximum size of these particles is not stated, but presumably they are small enough to pass through the finer vessels, as no reports have been found of embolic phenomena with Thorotrast, although these have been noted with other colloidal thorium dioxide preparations.[1]

ADMINISTRATION

1. *Hepatosplenography.*—Thorotrast is usually injected intravenously in 25 cc. portions, over a period of from three to five minutes, either undiluted or diluted to various degrees with physiologic solution of sodium chloride or isotonic dextrose. Generally three such injections are required and are usually given every other day, but these may be administered daily, depending on the patient's tolerance. If it is desired merely to outline the liver and/or spleen, one half, one third and sometimes less of the total dose may be sufficient. Roentgenograms are taken not sooner than twenty-four hours after the last injection.

Reactions are infrequent and when they occur their manifestations are of the variable sort referable to alteration of the colloidal equilibrium of the blood. Occasionally, symptoms already present are exaggerated. Generally these reactions subside rapidly. The reactions include: slight to moderate febrile reactions of up to twenty-four hours or so in duration; vomiting in hepatic cirrhosis, sometimes lasting several days; other reactions of an anaphylactoid variety (relieved by epinephrine in one case); hematemesis in patients with gastric ulcer or a malignant growth; severe asthmatic attacks in individuals so predisposed, and moderate and transient anemia of a few days' duration coincident with a transient, moderate, mononuclear leukocytosis. It is generally agreed that such reactions as occur are not ordinarily of a serious nature and do not provide serious contraindication to the use of the solution if care is taken to give fractional dosage to sensitive patients.[3]

No untoward reactions over a period of four months have been noted after total doses of up to 5 cc. per Kg. in rabbits.[4]

Moniz, Pinto and Lima[5] have obtained good roentgenograms of the vascular tree of the head by injecting a common carotid artery. Erhardt[6] has been able to diagnose the position and number of placentas in pregnant animals by large intravenous doses; Menville and Ané[7] have confirmed this in rats. Liepmann[8] has injected the human placenta in situ post partum, from the umbilical cord. The effects of various pharmacologic

3. (*a*) Radt.[1] (*b*) Kadrnka, S.: Schweiz. med. Wchnschr. **61**: 425 (May 2) 1931; Fortschr. a. d. Geb. d. Röntgenstrahlen **44**, number 1, 1931 (cited from Irwin); Radiology **18**: 371 (Feb.) 1932. (*c*) Stewart, Einhorn and Illick: Am. J. Roentgenol. **27**: 53 (Jan.) 1932. (*d*) Dickson, W. H.: Canad. M. A. J. **27**: 125 (Aug.) 1932. (*e*) McDonald, I. G.: Ibid. **27**: 136 (Aug.) 1932. (*f*) Tripoli, Haam and Lehman: Am. J. Roentgenol. **27**: 265 (Feb.) 1932. (*g*) Bauke: Deutsche med. Wchnschr. **57**: 1148 (July 3) 1931.
4. Irwin.[3] Muramatsu: Grenzgebiet., number 9, 1931 (cited from Irwin).
5. Moniz, Pinto and Lima: Roentgenpraxis **4**: 90 (Jan. 15) 1932.
6. Erhardt, K.: Zentralbl. f. Gynäk. **56**: 847 (April 2) 1932.
7. Menville, L. J., and Ané, J. N.: Proc. Soc. Exper. Biol. & Med. **29**: 1045 (June) 1932.
8. Liepmann, W.: Med. Klin. **27**: 1813 (Dec. 11) 1931.

agents on the size of liver and spleen have been studied after administration of Thorotrast.[9]

The preponderant consensus among clinicians who have used Thorotrast is that it is a valuable adjunct in differential diagnosis and furnishes information not obtainable by other means short of exploratory surgery. The questionable point remains that of ultimate toxicity.

2. Retrograde Pyelography.—Thorotrast is diluted with two parts of physiologic solution of sodium chloride or water for pyelography and with five parts for cystography. The solution so prepared is said to be somewhat viscid. Observers have not found this objectionable, although the excess pressure required for such solutions might be disadvantageous. The dilutions are said to be nonirritant, to give excellent pictures, and to be completely eliminated within twenty minutes so far as the x-ray opacity is concerned. Thorotrast has been used in Europe for visualization of various body cavities, particularly for pyelography, but, while comments are favorable, no case reports are available to the Council at this time. Experience with Thorotrast pyelography in this country has been very limited and no case reports have come to the Council's attention. Dickson [3d] believes that the solution possesses considerable advantage over the iodine solutions but this opinion is not held by Lewisohn,[3c] who considers the latter superior. The Council believes that a more extensive application of Thorotrast in this field would be necessary before definite conclusions may be drawn as to its place in urography. Thorotrast has also been recommended in various dilutions for outlining fistulas, sinuses, cysts and empyema cavities.[10] While excellent roentgenograms are obtained, completely convincing data are lacking as to their usefulness here, particularly in view of the possible retention of large quantities (discussed under Radioactivity).

DISTRIBUTION

Thorium dioxide is taken up over a period of several days following intravenous injection, by the cells of the reticuloendothelial system, in the liver, spleen, lymphoid tissue and bone marrow and to a lesser extent by the ovary and suprarenal. Rarely are particles visible in the kidneys.[11] Leipert [12] has performed chemical determinations on the liver, spleen, kidneys and other organs of three patients who died following Thorotrast injections and of three rabbits experimentally injected with doses as indicated. His data are given in the accompanying tables.

TABLE 1.—*Thorium Dioxide Recovered from Tissues Following Intravenous Injection of Thorotrast (from Leipert [12])*

Number and Diagnosis	Organ	Weight, Gm.	Thorium Dioxide in Grams: Found	Thorium Dioxide in Grams: Injected	Per Cent Recovered	Time after Injection
Man						
1. Gastric carcinoma	Liver	850	3.22			
	Spleen	50	0.193	6.0	56.9	4 days
	Gallbladder	15	0.0			
2. Carcinoma of rectum	Liver	2,310	8.9			
	Spleen	209	0.7			
	Kidneys	170	0.004	15.0	64.3	2 days
	Gallbladder	33	0.0			
	Skin	43	0.0			
	Bone marrow	28	0.0			
	Tumor	1,600	0.0			
3. Tumor of bile duct	Liver	1,400	12.95	16.5	97.0	60 days
	Spleen	200	3.04			
Rabbit 1	Liver	88.0	0.97			
	Spleen	4.5	1.94	6.0	48.5	28 days
	Kidneys	13.0	0.0			
Rabbit 2	Liver	97.0	1.72			
	Spleen	2.2	0.38	2.125	98.8	67 days
	Kidneys	16.0	0.002			
Rabbit 3	Liver	76.0	0.54			
	Spleen	1.5	0.08	0.875	70.9	91 days
	Kidneys	9.5	....			

Leipert's data on human beings are of course of limited significance, not only in view of the few cases examined but also because all these patients had tumors which could conceivably have greatly modified the distribution of the material. It is particularly to be noted that 97 per cent of the injected dose was recovered from the liver and spleen in one clinical case two months after injection. The ratio of clinical to experimental doses can be estimated here only roughly from the organ weights, as the body weights are not given. It is of interest that in the rabbits a larger quantity of thorium dioxide was recovered from the kidneys than from the spleen, which data are not in accordance with the histologic observations. Following subcutaneous injection, thorium dioxide has been found in regional lymph nodes.[13]

TABLE 2.—*Ratio of Thorium Dioxide Recovered from Liver and Spleen (from Leipert [12])*

	Number	Gm. Thorium Dioxide in: 1 Gm. Liver	Gm. Thorium Dioxide in: 1 Gm. Spleen	Ratio
Man	1	0.00379	0.00386	1:1
	2	0.00386	0.00343	1:0.9
	3	0.00926	0.0152	1:1.64
Rabbit	1	0.0111	0.4320	1:38.9
	2	0.0177	0.1740	1: 9.85
	3	0.0071	0.0544	1: 7.66

TOXICITY

Stewart, Einhorn and Illick [3c] reported four clinical cases of acute splenitis demonstrated at necropsy following the administration of approximately half the usual dose of Thorotrast. Lewisohn reports nuclear damage in the reticulo-endothelial system following what were apparently massive doses in rabbits. Huguenin, Nemours and Albot [14] were able to produce hepatitis, cirrhotic changes and splenitis by the injection of moderate to large doses in rabbits. Harris and Friedrichs [15] have also noted pathologic changes in the liver and spleen. Other reports indicate no apparent cellular damage in doses up to 5 cc. per kilogram, which is about six times the dose necessary for hepatosplenography in man.[2] Following subcutaneous injections, fibrotic changes have been noted in regional lymph nodes.[16]

ELIMINATION

Data as to the elimination of thorium dioxide are at the present time very sketchy and incomplete. In general it may be said that the liver gets rid of a certain portion of its quota partly at least by cellular transport to the lungs and elimination in the bronchial mucus.[2] Claims vary from a 50 per cent diminution in three months to no hepatic elimination in eight months.[17] The spleen, bone marrow, lymph nodes and ovary have as yet given no evidence of elimination.[18] The only chemical estimates of quantities remaining in the organs that are at present available to the Council are those of Leipert, already quoted.

RADIOACTIVITY

It is important to recognize that a determination of the radioactivity of a specimen of thorium is not necessarily a permanent measure of its emanative properties, since the radioactivity of freshly prepared and relatively pure thorium and its preparations may increase with age with the formation of mesothorium and radiothorium (two of the main constituents of the radioactive paint that produced fatal poisonings in factory workers), thorium X, thorium emanation, and so on.[19] A specimen of "chemically pure" thorium may continue to increase in activity for several years as its disintegration products accumulate and until they all reach equilibrium one with with another.[20] Furthermore, as pointed out by Martland [21]

9. Paffenholz, W., and Schuermeyer, A.: Klin. Wchnschr. **10:** 2076 (Nov. 7) 1931. Baumann, H., and Schilling, C.: Klin. Wchnschr. **10:** 1249, 1931. Haam, E.; Tripoli, C. J., and Lehman, E. B.: Proc. Soc. Exper. Biol. & Med. **29:** 1056 (June) 1932.
10. Gros: Schweiz. med. Wchnschr. **61:** 549 (June 6) 1931. Kremser, C.: Roentgenpraxis **4:** 189 (Feb. 15) 1932.
11. Kadrnka.[3b] Randerath: Inst. d. Med. Akad. Düsseldorf, 1931 (cited from Irwin). Kadrnka and Rossier: Acta Radiol. **12:** 369, 1931.
12. Leipert, T.: Wien. klin. Wchnschr. **44:** 1135 (Sept. 4) 1931.
13. Menville, L. J., and Ané, J. N.: Roentgen Visualization of Lymph Nodes in Animals, J. A. M. A. **98:** 1797 (May 21) 1932.
14. Huguenin, Nemours and Albot: Compt. rend. Soc. de biol. **108:** 879 (Dec. 4) 1931.
15. Harris, W. H., and Friedrichs, A. V.: Proc. Soc. Exper. Biol. & Med. **29:** 1047 (June) 1932.
16. Harris, W. H.: Proc. Soc. Exper. Biol. & Med. **29:** 1049 (June) 1932.
17. Kadrnka.[3b] Stewart, Einhorn and Illick.[3c] Dickson.[3d] Popper, H. L., and Klein, E.: München. med. Wchnschr. **78:** 1829 (Oct. 29) 1931. Naegeli and Lauchi: Med. Klin. **27:** 1878 (Dec. 18) 1931.
18. Irwin.[2] Dickson.[3d]
19. Hevesy, G., and Paneth, F.: A Manual of Radioactivity, London, 1926.
20. Hevesy and Paneth.[19] Starling, S. G.: Electricity and Magnetism, London, 1926.
21. Martland, H. S.: Occupational Poisoning in Manufacture of Luminous Watch Dials, J. A. M. A. **92:** 466 (Feb. 9), 552 (Feb. 16) 1929.

and by Flinn,[22] the alpha ray activity is by far the most important emanation with regard to direct effects on tissues, despite the low penetrating power through tissue (approximately 1 mm.). These rays are screened out in the therapeutic use of radioactive substances and it is only in intoxications that alpha ray effects are seen. The more widely distributed the radioactive substance, the greater will be this alpha ray reaction, as the numerous small foci more than compensate for the low penetration. The ratio of toxicity for tissue of alpha, beta and gamma rays is as 10,000 to 100 to 1 in the order given,[21] which is in inverse proportion to the penetrating power.[23]

The radioactivity of Thorotrast has been determined as follows:

Alpha ray: Twenty-five cubic centimeters of Thorotrast is equivalent to a maximum of 1 microgram and a minimum of 0.5 microgram of radium (Schlundt).

Beta ray: "Too feeble to be of physiological significance" (Schlundt).

Gamma ray: Twenty-five cubic centimeters of Thorotrast is equivalent to 0.4 microgram of radium (Radium Institut Bergakademie, Freiburg); equivalent to approximately 0.3 microgram of radium (Flinn). "Too feeble to be of physiological significance" (Schlundt).

As a total of 75 cc. is ordinarily used for intravenous administration, a quantity of thorium dioxide equivalent in alpha ray activity to from 1.5 to 3.0 micrograms of radium and in gamma ray activity to from 0.9 to 1.2 micrograms of radium would be widely distributed throughout the body, particularly in the reticulo-endothelial system. Such portions of the thorium salt as are not excreted, on the assumption that the preparation was fresh when injected, would increase in activity with the formation of disintegration products until these all had attained equilibrium.

On the assumption that an original maximum is the equivalent of 3 micrograms of radium: Definite destruction of bone and change in tooth structure have been noted with the presence in the body of quantities of radioactive substance estimated as the equivalent of 2 and of 4 micrograms of radium.[24] The limit of tolerance for the average normal person was formerly thought to be about 10 micrograms; as time has brought to light a greater number of radioactive intoxications it has become apparent that as little as 1 or 2 micrograms may be toxic.[22] Thorotrast would be used, not in normal persons, but in those in which a disease process is already in evidence (often a borderline malignant condition); the more so then the equivalent of 3 micrograms of radium must be considered a highly dangerous dose (even on the assumption that elimination may counterbalance the increase in activity of the remaining thorium). Martland, whose experience with radioactive poisonings has been extensive, is of the opinion that the normal radioactivity of the body should not be increased for any reason because of the danger of malignancy.

Stewart, Einhorn and Illick[3c] were able to obtain a photographic image on a plate after twenty-four hours' exposure to a section of spleen removed at necropsy. In this individual approximately one-half the usual dose of Thorotrast had been injected. Dickson[7d] was not able to obtain an image after "several days' exposure" of "heavily impregnated" sections of liver and spleen to photographic plates. Neither of these workers states whether the tissue was exposed directly to the plate by contact or with an intervening air space, or whether a sheet of paper was interposed. With the contact method Martland was able to obtain images only after an average of from seven to ten days' exposure with sections of bone that contained quantities of radioactive material which had proved fatal. By the interposition of a piece of paper that screened out the alpha rays, up to three weeks or more was required for the production of an image with fatal quantities. Therefore, the image obtained by Stewart and his co-workers represents either a very high concentration of radioactive material, a much more sensitive plate than used by Martland, or faulty technic. That Dickson was unable to obtain an image after several days' exposure does not constitute evidence one way or the other. Dickson further states that "concentrated liver pulp of rabbits receiving large doses of thorium dioxide gave no reaction of any importance with the electroscope." This can be attributed to absorption of alpha radiation by the liver pulp or possibly to temporary de-emanation of the thorium as the result of the process of "concentration," which might tend to occur if the latter was performed in vacuo.

Martland[21] remarks, "As the charge of the alpha particle is positive and the colloid systems of the erythrocytes are strongly electronegative and are permeable only by anions, the red blood corpuscles are particularly liable to injury." This may well account for the early anemia seen in some of the experimental animals and in a few patients, as the occurrence of this anemia coincides approximately with the presence of floccules in the blood stream (Irwin) and clears up in a few days when these floccules have disappeared.

To date, no evidence has been brought forward, to the Council's knowledge, that the thorium dioxide is removed from certain areas such as the bone marrow, spleen, lymph nodes and ovary; as far as the longest period of observation in the American literature is concerned (nine months) the material appears to be permanently fixed in these areas. In the liver a 50 per cent reduction in opacity in three months is claimed,[3d] although Stewart and his co-workers found no decrease in opacity in their one surviving patient at eight months.

Martland says: "It is important to note that the known cases of radium poisoning all affected the girls who had worked steadily in this plant from one to two or more years. . . . The symptoms [develop late], occurring from *one to seven years* [italics ours] after the patients leave the employment. . . ."

It is certain that the period of observation on patients and on animals since the introduction of Thorotrast has been insufficient to rule out the possibility of ensuing necrotic and/or malignant changes, although it is conceivable that a shorter period might suffice in the case under consideration, when massive doses are given at one time, than was required for the production of pathologic changes in the cases of occupational poisoning, in which very small doses were daily ingested and inhaled over periods of several years.

There exists further the possibility of sensitization of tissues locally by the presence of thorium to the subsequent action of roentgen rays. This was demonstrated by Ellenger and Gans[25] and by Siedamgrotsky and Picard[26] for the local injection of thorium nitrate, this effect not being shared in common with other protein precipitants and hence probably being a thorium effect. This possibility has been recognized by the Toronto group of workers: "Thorium . . . possesses a very short wavelength and the wavelength of its secondary radiation when bombarded by x-rays is also very short. With long-continued storage of the thorium dioxide in the liver and bone marrow, the question of exposure to radiation from the x-ray tube in cases suffering from metastases in these areas is an interesting one. At the present time Dr. Richards is carrying on research along these lines."[3d] While this property of secondary radiation may be of distinct value in the treatment of malignant conditions, it may well impose a definite risk on those patients who have had the injection as a diagnostic measure and subsequently are exposed to roentgen radiation.

In view, therefore, of the very imperfect elimination of thorium dioxide, its fairly high alpha ray activity, the possibility of further increase in radioactivity by partial conversion to mesothorium and radiothorium, and the possibility of sensitization of tissues to roentgen rays; considering the short period during which patients have been kept under observation, the Council voted that Thorotrast be not accepted for *intravenous administration.* The Council also voted that acceptance of Thorotrast for use in retrograde pyelography and for outlining various body cavities be deferred until more satisfactory evidence becomes available as to its therapeutic usefulness in these fields. The Council further decided that acceptance of the proprietary name "Thorotrast" be deferred until satisfactory evidence becomes available that this preparation involves a fundamental improvement over other thorium preparations for use in roentgenography.

22. Flinn, F. B.: Am. J. Physiotherapy, June, 1932.
23. Russ, Clark and Waters: Physics in Medical Radiology, London, 1928.
24. Flinn.[22] Leake, J. P.: Radium Poisoning, J. A. M. A. **98**: 1077 (March 26) 1932.
25. Ellenger and Gans, cited from Solis-Cohen and Githens: Pharmaco-Therapeutics, New York, 1928.
26. Siedamgrotsky and Picard, cited from Arzt and Fuhs: Roentgen Rays in Dermatology, New York, 1927.

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SATURDAY, DECEMBER 24, 1932

SOME FACTORS IN THE MINERALIZATION OF BONE

Biochemists are reaching an increasingly greater accord in the belief that bone derived from any part of the skeleton has a rather constant inorganic composition. At any rate the "minerals" do not represent a widely variable mixture. X-ray spectrums, which afford one of the newer methods of scientific examination supplementing direct chemical analysis, indicate in a general way that bone has a crystalline structure like some of the familiar minerals.[1] Tooth enamel is similar, the general formula being of the type $CaCO_3.nCa_3(PO_4)_2$. From this it is obvious what elements are concerned in maintenance of the integrity of such structures.

Ever since the discovery of vitamin D as an essential factor in physiologic well being, attention has been directed to its potent influence on the metabolism of the inorganic elements involved in the bones; namely, calcium and phosphorus. Analyses of the bones, in experimental animals, are currently undertaken to indicate this function. Variations in the so-called ash content of bone serve as an index of the comparative effects of different intakes of the antirachitic vitamin D. Under conditions of stress, administration of the latter vitamin is expected to increase the mineralization of the bones; that is, to facilitate calcification. The effects of vitamin D in any of the varied dosage forms now available—in cod liver oil and its concentrates, in viosterol, or through the effects of certain types of radiant energy and in certain foods—are truly remarkable. Large effects are initiated by small promotional influences.

The somewhat dramatic character of such biologic phenomena has tended to direct attention almost exclusively to the vitamin features, with relatively small consideration of other factors that inevitably may exert a significant influence in the mineralization of bone. Obviously, in the complete absence of the essential elements for calcification, namely, calcium and phosphorus, the inorganic structure of the bones cannot be developed or maintained. Both elements are in some measure continually being drained from the body through excretory channels. They are less carefully conserved than some of the other elements, such as the alkalis; and of course they cannot be generated de novo in the body. Recent studies have shown conclusively that the amounts of the bone-forming inorganic elements in the diet may play an important part. Thus, Bethke, Kick and Wilder[2] have demonstrated that in the absence of vitamin D the proportion of calcium to phosphorus in the ration, within certain limits, produces a definite effect on growth, bone formation, and the percentages of these elements in the blood. Although in their experiments the concentration or the levels at which calcium and phosphorus were present in the ration had some beneficial effect on growth and bone formation, this effect was not as great as that exerted by the actual proportion between the elements. The inclusion of vitamin D not only tended to stabilize the calcium and inorganic phosphorus concentrations in the blood serum but made a greater percentage of these elements available for such biologic phenomena as calcification and growth. Shohl[3] and his co-workers at Western Reserve University also have found that dietary conditions other than those involving the availability of vitamin D affect the mineral imbalance that causes rickets. The "level" of intake of the elements involved as well as the ratios between them are significant. When a properly constituted diet is administered, the favorable outcome is what has significantly been described[2] as the "over-all" or combined effect of the inorganic elements and vitamin D. Probably the form in which calcium and phosphorus are available, as well as the potential reaction of the diet, has an influence on the organism.

1. Roseberry, H. H.; Hastings, A. B., and Morse, J. K.: X-Ray Analysis of Bone and Teeth, J. Biol. Chem. **90**: 395 (Feb.) 1931. Bogert, L. J., and Hastings, A. B.: The Calcium Salts of Bone, ibid. **94**: 473 (Dec.) 1931.

2. Bethke, R. M.; Kick, C. H., and Wilder, Willard: The Effect of the Calcium-Phosphorus Relationship on Growth, Calcification, and Blood Composition of the Rat, J. Biol. Chem. **98**: 389 (Nov.) 1932.

3. Brown, H. B.; Shohl, A. T.; Chapman, E. E.; Rose, C. S., and Saurwein, E. M.: J. Biol. Chem. **98**: 207 (Oct.) 1932.

FOOTBALL FATALITIES OF 1932

The close of the football season of 1932 in the United States affords opportunity to ascertain to what extent the added safeguards of the new rules put into operation this year have brought effective reforms. The statistician says that the number of fatalities was less than in 1931, a statement that would be consoling were it not followed by the admission that the present year's figure is the second greatest for any year during which national records have been kept. The 1932 football casualty list late in November records thirty-seven deaths; among the victims, five were college men, seventeen high school students and fifteen sand-lot, semi-pro and club team competitors. Broken necks and

cerebral injuries were prominent among the causes of death. Apparently continued reform is desirable.

There are accidents in all walks of life, not to say in industry or in athletics, that cannot be averted even by any reasonable precaution. But it ought not to require the tragedy of the death or serious injury of some prominent football player—such as has occurred in preceding years—to demand modification of a sport that produces fatalities. An observer of the Associated Press remarks that the new rules, passed last spring and designed to ward against any such casualty list as that of last year, seem to have been successful in organized college and university conferences where games were played under stricter officiating and better coaching. Reports on sand-lot, neighborhood and some high school games, however, indicate that some of the deaths might have been avoided if there had been closer adherence to the rules and better medical supervision. Data are not available regarding the injuries that were not fatal. In most discussions of the subject these are overlooked as though they were of minor consequence. Football injuries are a reality, even among the "regulated" institutions. As an instance, a recent review of the football season in one of the foremost American universities bemoans "a succession of injuries to various pivotal players." [1]

Whatever may be the alleged advantages of facing danger in the development of courage and "manhood," it can scarcely be argued with justice that actual bodily injuries are a physiologic advantage in the strengthening of youth. Physicians are inclined to advise the average man that he exercise enough to keep himself in good condition, but not to the point of fatigue or distress. Modern sports should be conducted under conditions that guarantee a maximum freedom from avoidable injuries to the human body.

1. Yale Alumni Weekly **42**: 243 (Dec. 2) 1932.

MAN'S CONQUEST OF NATURE

To most persons, reference to man's conquest over nature probably implies the perfection of chemical, physical or mechanical devices to overcome some of the obstacles to progress presented by environment. In transportation, not only the land but also the water and the air are today traversed successfully over long distances, thanks to modern inventions. Progress in these directions has involved the development of speed and safety and, in many instances, the reduction of cost. There are advances, however, that involve human physiologic adjustments. These are rarely appreciated or understood. The conquest of altitude by man is an illustration. In 1930, Lieutenant Soucek of the United States Navy climbed in an airplane to a height of 43,166 feet, an altitude at which the barometric pressure and the consequent low partial pressure of oxygen in the atmosphere would make life practically impossible under ordinary conditions. An elevation of 10,000 feet or even less may provoke altitude sickness in some. Others may escape symptoms up to 14,000 feet, while only a few, possessed of unusual powers of resistance, can without great distress venture beyond this. In the famous balloon ascension by Tissandier and his companions in 1875, he alone survived the attained altitude of 28,820 feet.

The success of Soucek and his high altitude aviator predecessors was due to the use of oxygen breathing apparatus as well as the supercharging of the engines with oxygen to permit fuel combustion satisfactorily in the upper reaches of the air. The intense cold was combated by suitable heating and insulating devices incorporated into the clothing of the aviator. Last September, Captain Unwins of Great Britain was reported to have reached an altitude of approximately 45,000 feet, more than 8 miles. He encountered a temperature of 68 degrees below zero, against which he was protected by electrically heated goggles, gloves, shoes and clothing. Oxygen breathing apparatus of course also functioned to maintain suitable respiration. The widely heralded balloon flights of Prof. Auguste Piccard of Belgium into the stratosphere were made in sealed cabins and resulted in ascensions to a height of more than 50,000 feet.

Another type of conquest over altitude has involved the advantage of compensatory physiologic adjustments through physical training in mountain climbing. The Mount Everest expeditions have shown that acclimatization sufficient to prevent any symptom of mountain sickness could be obtained at a height of even 27,000 feet, and probably higher. Haldane [1] has pointed out that the experiences of Colonel Norton, Dr. Somervell and Mr. Odell on this point are conclusive. Not only had they no mountain sickness on staying over a night at 27,000 feet, but they could sleep well and were quite comfortable during rest, if the extreme privations suffered render it possible to speak of comfort. To an unacclimatized person a stay of any duration at a height of 27,000 feet means certain death within a short time. At heights above about 12,000 feet, death from mountain sickness may quite well occur in persons who are completely unacclimatized and in bad physical training. The difficulties in respiration and its consequences are greatly enhanced by the unusual demands of the muscles in climbing. This makes even more notable the recent achievement of the German Andes expedition [2] in its conquest of the highest mountain peak in the Western Hemisphere, Aconcagua in Argentina. The height of this is more than 23,000 feet, a measurement that gives no intimation of the enormous physical hardships of wind and weather. The human organism affords occasion for enthusiastic admiration even in a mechanical age.

1. Haldane, J. S.: Acclimatization to High Altitudes, Physiol. Rev. **7**: 363 (July) 1927.
2. Reported in the New York Times through a Berlin dispatch dated November 9.

Current Comment

BACTERIAL FILTRABILITY

Filtrability or nonfiltrability of a given suspension of virus is not determined solely by the size, shape or elasticity of the infectious particles. Mudd [1] has emphasized the extramechanical factors concerned in bacterial filtrability, Kramer [2] those involved in the filtration of colloids. Kramer showed that the ordinary Berkefeld filter is "basophilic," or negatively charged. Basic dyes, such as victoria blue B, tend to be adsorbed by such a filter, the filtrates often containing no demonstrable dye. The same dye, however, readily passes through an "acidophilic," or positively charged (plaster of paris), filter of the same size or even one with smaller pores. The exact reverse is demonstrated with acid dyes. Kramer found that a "neutrophilic" filter could be made of a proper mixture of "basophilic" and "acidophilic" materials and that such a filter would hold back neither basic nor acid dyes. Holman [3] produced similar results in bacterial filtrability by "insulating" his filters with liquid petrolatum, both acid and basic particles readily passing through such an "oiled" filter. The mechanical pore size is presumably lessened by "oiling." Varney and Bronfenbrenner [4] have shown recently that a similar change in filtrability can be produced by varying the chemical nature of the suspension fluid. Routine bacterial cultures suspended in a special medium, for example, were found to be relatively "filtrable," while control suspensions in nutrient broth were "nonfiltrable."

COLLOIDAL GOLD AND CANCER

"Collodaurum," a proprietary medicine said to consist of colloidal gold, is marketed by the Kahlenberg Laboratories, Inc., of Two Rivers, Wis. It is said to have been developed by Prof. Louis Kahlenberg of the University of Wisconsin and Dr. Edward H. Ochsner, and has been sold under the claim that it is "far superior to X-ray and radium in the treatment of inoperable cases of cancer, and also as postoperative treatment." As late as November, 1932, physicians have received circular letters urging them to try "Collodaurum" in cancer. Accompanying the letters were reprints of an article by Dr. Edward H. Ochsner published in 1924, or about eight years ago. In 1925, THE JOURNAL published a report of the Council on Pharmacy and Chemistry that pointed out that the claims for this product were not supported by acceptable evidence and were therefore unwarranted. No doubt considerable quantities of this preparation have been sold to the medical profession in the intervening eight years or the company would long since have discontinued its efforts in promoting this product. THE JOURNAL has repeatedly said that, after all, time is the true test of any cancer cure. If a product offered for use in cancer had any real merit, its praises after eight years would have been so widely sung that its manufacturer would not have to promote it by either circulars or advertising. THE JOURNAL is not aware of any single scientific publication or statement made in the eight years intervening since this product was first promoted to indicate that it is in any sense of the word better established now than it was then. The fact that its promotors find it worth while to circulate such letters and such reprints at this time indicates that there are still physicians willing to try almost anything that can be offered in the treatment of cancer. The continued sale of "Collodaurum" is a sad reflection both on the scientific judgment of those who use the product, and on those who lend their names to the promotion, and again an indication that cancer offers a fertile field for the promotor of any remedy for cancer that may be concocted.

THE NEXT PHARMACOPEIA

In this issue of THE JOURNAL, under the heading "Miscellany," appears a list of proposed deletions from the next Pharmacopeia and also of proposed additions. The general chairman of the revision committee, E. Fullerton Cook, requests the aid of physicians in the final decision to be made on the products listed. In preparing this list, a study was made of 10,000 prescriptions, with some exceedingly interesting results. For example, calcium glycerophosphate was used 7 times in 10,000 prescriptions. Apparently the medical profession has realized that the claims formerly made as to the tonic effects of the glycerophosphate have been abandoned and that there are other preparations more advantageous for calcium. Elaterinum was used only 1.1 times in 10,000 prescriptions, indicating the way in which other purgatives have superseded this substance. Guaiacol carbonate was used 28.7 times in 10,000 prescriptions, and it is pointed out that there is no evidence that it really represents guaiacol. The results relative to jalap are about the same as with elaterinum. Lobelia was used 11.2 times in 10,000 prescriptions, and thus this old idol of the eclectics is about to pass into the discard. Then there is croton oil, gradually diminishing in usefulness from 9 times in 10,000 in 1885 to 4.7 in 1909, 4 in 1927 and 1 in 1931. The other preparations listed for deletion have been given the same type of study as those here mentioned. The U. S. Pharmacopeia should represent, as has been pointed out repeatedly in these pages, not all the drugs that any physician may prescribe at any time but those drugs which are used by a maximum number of physicians and the use of which is based on sound pharmacologic and clinical evidence. The Pharmacopeia is a book primarily for physicians, providing a list of medicinal agents for whose strength and purity official agencies are responsible. For this reason, physicians should aid those who are compiling the book. The specifications for the Pharmacopeia demand that the substances admitted be of established usefulness, of pharmaceutic necessity, and that they be sufficiently used to warrant their inclusion. These deletions, it must be remembered, are those of the Committee on Scope. At the last conven-

1. Mudd, Stuart: Am. J. Physiol. **63**: 429, 1922.
2. Kramer, S. P.: The Newer Knowledge of Bacteriology and Immunology, 1928, chap. 41, p. 557.
3. Holman, W. L.: Am. J. Path. **2**: 483, 1926.
4. Varney, P. L., and Bronfenbrenner, J. J.: Proc. Soc. Exper. Biol. & Med. **29**: 804 (April) 1932.

tion it was ordered that the decision of the Committee on Scope should be subject to the review and confirmation by the entire General Revision Committee; on this committee the medical members are in a minority. In the previous review, the Committee on Scope had complete authority to make therapeutic additions and deletions and was not subject to the proprietary or pharmacy interests. It is hoped that the General Committee will not override the report of the Committee on Scope.

HYBRID PROTEIN SPECIFICITIES

After crossing several different genera of pigeons and comparing the fractional specificities of the paternal, maternal and offspring erythrocytes, Irwin [1] reports that nearly all the antigenic substances of both parents are present in the hybrid red blood corpuscles. He states also that there is demonstrable a new "biochemical character" which is not present in either parent. Antihybrid serum, for example, quantitatively adsorbed by the cells of both parental genera, still agglutinates hybrid erythrocytes. This observation leads to interesting speculations in genetics and may have extensive application in both forensic and clinical medicine.

Association News

THE MILWAUKEE SESSION

Four Special Exhibits in the Scientific Exhibit

The Committee on Scientific Exhibit has arranged for four special exhibits at the Milwaukee Session, June 12-16, 1933, each exhibit to be under the supervision of a committee appointed for the purpose, as follows: Exhibit on Poliomyelitis, R. C. Williams, chairman, Washington, D. C.; Exhibit on Cancer, Frank W. Hartman, chairman, Detroit; Exhibit on Circulation of the Blood in the Capillaries, Irving Sherwood Wright, chairman, New York; Exhibit on Fresh Pathology, Norbert Enzer, chairman, Milwaukee.

Chairman of Local Committee on Arrangements

Dr. Stanley J. Seeger, 324 East Wisconsin Avenue, Milwaukee, will serve as chairman of the Local Committee on Arrangements for the Milwaukee Session.

Subcommittee on Hotels

Dr. Harry J. Heeb has been appointed chairman of the Subcommittee on Hotels. Communications concerning hotel reservations should be addressed to Dr. Harry J. Heeb, 740 North Second Street, Milwaukee, Wis.

A list of hotels at Milwaukee will be published in these columns within a short time.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday and Wednesday from 9:45 to 9:50 a. m. (central standard time) over Station WBBM (770 kilocycles, or 389.4 meters).

The subjects for the week are as follows:

December 26. No broadcast.
December 28. Depression Death Rates.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 9:45 to 10 o'clock over Station WBBM.

The subject for the week is as follows:

December 31. Profit or Loss?

1. Irwin, M. R.: Proc. Soc. Exper. Biol. & Med. **29**: 85 (April) 1932.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

COLORADO

Society News.—At a meeting of the Boulder County Medical Society, in Longmont, December 8, Dr. Frank B. Stephenson gave a demonstration of the Mantoux test for tuberculosis, and Dr. Roy P. Forbes spoke on "Tuberculosis in Children."

Influenza in Denver.—To safeguard patients against a wave of influenza, the Denver General Hospital, Denver, has been temporarily closed to visitors and all operative work other than emergencies has been canceled. More than 800 cases of influenza were reported by Denver physicians alone during November, the bulletin of the local health department pointed out. The disease has not been severe nor the prostration great. Fifty-three deaths from all forms of pneumonia and seven deaths from influenza were reported during November, as against thirty-three deaths from pneumonia and nine deaths from influenza for the same period in 1931.

ILLINOIS

Personal.—Dr. Ralph T. Hinton, managing officer of the Manteno State Hospital, observed his twenty-fifth anniversary with the state department of welfare, November 22.——The "silver beaver" award of the Boy Scouts of America was recently conferred on Dr. Warren E. Taylor, Moline. The award is made each year to the man in the Moline area who has shown "distinguished service to boyhood," the report stated.

Dr. Anderson Honored.—The Decatur Medical Society observed the completion of fifty years in the practice of medicine of Dr. Frank M. Anderson at its meeting, December 2. The guest of honor was presented with a gift of flowers, following a review of his career by Dr. Wilbur Wood. Dr. Anderson, who has practiced in Decatur thirty-three years, was president of the society in 1921. Officers elected at this meeting are Drs. Ansel O. Magill, president; Herbert E. Parsons, vice president, and Dwight A. Pence, secretary. They will assume office in January.

Chicago

Additional Hospital Beds for the Poor.—Thirteen private hospitals in Chicago made available, December 12, 400 free beds for those of the sick poor denied admission to the overcrowded Cook County Hospital. The cost of hospitalization for these persons, which is not to exceed $3.75 a day, will be borne by the Emergency Welfare Fund of Cook County. Applicants will be received on recommendation of the county department of public welfare or any recognized social agency, the Chicago *Tribune* reported. The institutions which offered beds are Augustana, Grant, Chicago Lying-In, Lutheran Deaconess, Michael Reese, Mount Sinai, Passavant, Presbyterian, Provident, St. Elizabeth's, St. Luke's, St. Mary of Nazareth and the Women's and Children's hospitals. The movement to provide beds in private institutions was begun to relieve the overcrowded condition of the county hospital, which is caring for about 2,900 patients, whereas its normal capacity is 2,500. Free hospitalization will greatly increase the expenditures of health service of the emergency welfare fund, it was stated, which, at present, has $1,100,000 set aside for this purpose.

MICHIGAN

University News.—At the meeting of the Pediatric and Infectious Disease Society of the University of Michigan in Ann Arbor, November 11-12, Dr. David Murray Cowie, founder of the organization, was elected honorary chairman for life, and the following officers were elected for the ensuing year: Drs. Gustave F. Weinfeld, Chicago, president; Leon F. L. DeVel, Grand Rapids, vice president, and John P. Parsons, Ann Arbor, secretary.

Society News.—A symposium on acute conditions in the abdomen constituted the program of the West Side Medical Society, December 1, in Detroit. Speakers were Drs. Ralph H. Bookmyer, Francis S. Porretta, Edward Dowdle, Leo G. Jentgen, Isaac S. Gellert and Lewis S. Potter.——Dr. William J. Stapleton, Jr., addressed the Detroit Medical Club, November 17, on malpractice.——At a meeting of the Grosse Pointe

Medical Club, November 16, Dr. Hugh L. Stalker spoke on "Rheumatic Fever and Rheumatic Heart Disease."——The St. Clair County Medical Society heard a paper by Dr. Harry W. Plaggemeyer, Detroit, in Port Huron, December 3, on "Stone in the Kidney."——Dr. William P. Healy, New York, addressed the Detroit Obstetrical and Gynecological Society, December 5, on "Tumors of the Ovary — Experience with Surgical and Radiation Therapy."——At a meeting of the Maimonides Medical Society in Detroit, November 14, Dr. Plinn F. Morse spoke on "Differential Diagnosis of Splenomegalies."——Dr. William J. V. Deacon, Lansing, was reelected president of the Michigan Public Health Association, which met recently in conjunction with the state public health conference in Lansing.——Dr. Norman F. Miller, Ann Arbor, discussed birth control before the Washtenaw County Medical Society, December 8.——Dr. Carl V. Weller, Ann Arbor, addressed the Kalamazoo Academy of Medicine, November 15, on "Extrinsic Factors in the Causation of Malignancy."——Dr. Morris Fishbein, Chicago, addressed the Calhoun County Medical Society, Battle Creek, December 6, on "Present Trend of Private Practice."

NEBRASKA

Annual Clinic. — The third annual clinic day at Bryan Memorial Hospital, Lincoln, was held, October 28, with eighty-five out-of-town physicians in attendance. Guest speakers were Drs. Isaac A. Abt, Chicago, who discussed the use of carbohydrates in diet and treatment of infants; Allen B. Kanavel, Chicago, infections of the hand; Jennings C. Litzenberg, Minneapolis, hemorrhage occurring in obstetric practice; W. Eugene Wolcott, Des Moines, newer methods of treating arthritis, and Walter C. Alvarez, Rochester, Minn., upper abdominal pain.

Dinner to Dr. Hamilton. — Dr. Herschel P. Hamilton, Omaha, was the guest of honor at a dinner given by the staff of Covenant Hospital, November 3, marking his retirement from the hospital staff and from active practice. Dr. Max Emmert was toastmaster and speakers included Drs. John E. Summers, Paul H. Ellis, Francis A. Long, John P. Lord and Rudolph Rix. Dr. Hamilton has been in Omaha since his graduation from the University of Louisville School of Medicine in 1887 and has served in various capacities on the teaching staff of Creighton University School of Medicine.

NEW YORK

Cancer Meeting.—The eighth annual meeting of the New York State Committee of the American Society for the Control of Cancer was held in Rochester, December 13. The morning was devoted to a clinical conference at St. Mary's Hospital under the chairmanship of Dr. Leo F. Simpson. Dr. Burton T. Simpson, Buffalo, discussed "Recent So-Called Cancer Cures"; Dr. John M. Swan reported cases of five-year cure of cancer, and the remainder of the conference was given over to discussions of precancerous lesions. The annual business meeting was held in the afternoon, followed by a banquet at the University Club. The committee in cooperation with the Rochester Lions Club sponsored a public meeting in the evening, at which Dr. Simpson made the principal address.

New York City

Third Harvey Lecture.—Dr. George W. Corner, professor of anatomy, University of Rochester School of Medicine, delivered the third Harvey Lecture at the New York Academy of Medicine, December 15, on "The Nature of the Menstrual Cycle."

Dinner to Dr. Brown.—Associates and other friends of Dr. Samuel A. Brown, dean emeritus of New York University and Bellevue Hospital Medical College, entertained him at a dinner at the Union Club, December 4, in recognition of his many years of service. Dr. George David Stewart was toastmaster; the speakers included Mr. Charles M. Schwab; Elmer Ellsworth Brown, LL.D., chancellor of New York University, and Dr. Walter L. Niles, former dean, Cornell University Medical College. Dr. Brown resigned as dean last May after sixteen years' service. He had been associated with the university since 1896.

Lectures on Diseases of Industry. — Eight lectures on occupational diseases and industrial poisons have been arranged by the New York Academy of Medicine and the New York Tuberculosis and Health Association in cooperation with the New York city and state health departments and the state department of labor. The first four were given at the academy building by Drs. Anthony J. Lanza, December 1, on "Control of Occupational Diseases"; Royd R. Sayers, chief surgeon, U. S. Bureau of Mines, Washington, D. C., on "Silicosis"; George H. Gehrmann, Wilmington, Del., December 15, on "Aniline Dye," and Fred Wise, December 22, "Occupational Dermatoses." Coming lectures will be as follows:

Dr. Henry H. Kessler, Newark, N. J., Benzol Poisoning, January 5.
Dr. Harrison S. Martland, Newark, N. J., Radium Poisoning, January 12.
Dr. Alice Hamilton, Boston, Lead, Arsenic and Mercury Poisoning, January 19.
Dr. Adelaide Ross Smith, Occupational Diseases in New York, January 26.

Society News.—Dr. John A. Hartwell, president of the New York Academy of Medicine, gave the anniversary discourse of the Bronx Pathological Society, December 20, at the Bronx Hospital, on "Ideals in Medicine."——At a meeting of the New York Gastro-Enterological Association with the section on medicine of the New York Academy of Medicine, December 1, speakers were Drs. Robert A. Cooke, on "Gastro-Intestinal Manifestations of Allergy"; William B. Castle, Boston, Nathan Rosenthal and Harold A. Abel, on "Gastric Achlorhydria and Its Relation to the Blood Picture," and George W. Holmes, Boston, "Carcinoma in Some Chronic Ulcerating Lesions of the Stomach."——Dr. Bernard Sachs was elected president of the New York Academy of Medicine at the annual meeting, December 1, and Dr. Fred P. Solley, vice president. The fourth Friday afternoon lecture at the academy was given by Dr. Henry Alsop Riley, December 2, on "Migraine and Its Treatment." The fifth Friday afternoon lecture at the academy was delivered, December 9, by Dr. Mortimer W. Raynor, professor of clinical psychiatry, Cornell University Medical College, on "The Psychiatric Approach of the Practitioner to His Patient."

OHIO

Dr. Lenhart to Head Surgical Department.—Dr. Carl H. Lenhart, professor of clinical surgery at Western Reserve University School of Medicine, has been appointed professor and head of the department of surgery to succeed Dr. Elliott Cutler, who recently resigned. Dr. Lenhart will be director of surgery at the University Hospitals and in the outpatient departments of the school of medicine and the University Hospitals. A native of Ohio, he was graduated in 1904 from Western Reserve School of Medicine and has been on the teaching staff of his alma mater for a number of years. He has also been director of the surgical division and head of the department of general surgery at Cleveland City and St. Luke's hospitals. Dr. Cutler became Moseley professor of surgery at Harvard University Medical School in succession to Dr. Harvey Cushing on the latter's recent retirement.

PENNSYLVANIA

State Society Supports Minority Report.—The board of trustees of the Medical Society of the State of Pennsylvania at a meeting in Harrisburg, December 6, voted unanimously to support the minority report of the Committee on Costs of Medical Care. The board also sent to Governor Pinchot a message urging the adoption of plans whereby relief distribution of food in the state would be based on scientifically balanced diets; President Charles Falkowsky, Scranton, was authorized to appoint two members of the society experienced in dietetics to advise in the selection of these diets.

Eightieth Anniversary of Society.—The Cambria County Medical Society celebrated the eightieth anniversary of its founding at its annual dinner at the Hendler Hotel, Johnstown, December 15. A pageant representing the evolution of the woman's auxiliary, written by Mrs. David B. Ludwig and Mrs. William T. Mitchell, was presented by members of the auxiliary. Dr. William A. Prideaux, Twin Rocks, Pa., gave a reading of Van Dyke's "The Mansion"; following a musicale, the remainder of the evening was spent at bridge. This society was organized in 1852 and after a few years passed out of existence. All official records of the society up to 1889 were lost in the Johnstown flood, but available records show that the organization was revived in 1868 for a time, but it was not until 1882 that it was on a permanent basis. *Medical Comment*, official organ of the society, issued a history of the organization in honor of the occasion, with biographic sketches of the present membership.

Philadelphia

Medical Dental Night. — A special program on subjects related to both medicine and dentistry was presented by the Philadelphia County Medical Society, December 14. Dr. Edward W. Beach and James R. Cameron, D.D.S., discussed "Selection of the Anesthetic for Cardiovascular Patients Undergoing Dental Surgery"; Dr. Temple S. Fay and Victor H. Frank, D.D.S., "Postoperative Pain and Hemorrhage"; Drs.

Karl M. Houser and Lawrence Curtis and J. L. Appleton, D.D.S., "Interrelation of the Sinuses to the Medical and Dental Fields."

Society News.—The section on medical history of the College of Physicians of Philadelphia held its sixth annual student night, November 14. A symposium on the history of physical diagnosis was presented by Drs. Robert W. Buck, Boston, who spoke on "Physical Diagnosis Prior to Auenbrugger"; Thomas McCrae, "Auenbrugger and Laënnec and Their Contributions to Physical Diagnosis"; Thomas Barnes Futcher, Baltimore, "Physical Diagnosis Between Laënnec and Roentgen," and William Egbert Robertson, "Later Additions to Physical Diagnosis."——The Friday afternoon seminar of the Philadelphia County Medical Society for December 9 was delivered by Drs. George C. Griffith and Hugo Roesler, on electrocardiography and roentgenology, respectively.——Dr. Ferris Smith, Grand Rapids, Mich., addressed the Philadelphia Laryngological Society and gave demonstrations on an operation for pansinusitis, December 6.——Dr. Esmond R. Long, professor of pathology, University of Pennsylvania School of Medicine, gave the Annual Conversational Lecture of the Pathological Society of Philadelphia, December 8, on "The Inflammatory Reaction in Tuberculosis."

TEXAS

Society News.—Dr. Otto Jason Dixon, Kansas City, Mo., was a guest of the Dallas Academy of Ophthalmology and Otolaryngology at its November meeting. His subjects were "Vascular Complications Secondary to Dental Infections" and "Acute Infections of the Head and Neck."——The Texas Dermatological Society held its annual meeting in Dallas, October 15.——Dr. Ernst W. Bertner, Houston, was elected president of the Texas Association of Obstetricians and Gynecologists at the annual meeting in Houston, October 1. Dr. Harold O. Jones, Chicago, delivered the Paine Lecture of the society, illustrated by motion pictures of gynecologic subjects.——Drs. Joseph Kopecky and Andrew G. Cowles, San Antonio, addressed the Guadalupe County Medical Society, October 11, on "Useful Drugs in Cardiac Edema" and "Genito-Urinary Surgical Problems," respectively.——Among other speakers who addressed the annual meeting of the Fourth District Medical Society at Coleman, in October, were Drs. Curtice Rosser, Dallas, on "Management of Rectal Diseases"; Arthur C. Scott, Temple, "Cervicitis and Its Relation to Cancer of the Cervix," and Herbert B. Rollins, Lampasas, "Injection Treatment of Varicose Veins."

WEST VIRGINIA

Society News.—Dr. Robert C. Farrier, Morgantown, was elected president of the West Virginia Public Health Association at the annual meeting in Morgantown, November 19.——Dr. Morris A. Slocum, Pittsburgh, addressed the Monongalia County Medical Society, Morgantown, November 1, on acute surgical conditions of the abdomen.——Dr. Benjamin I. Golden, Elkins, addressed the Cabell County Medical Society, Huntington, November 10, on "Abdominal Chronicity and the Autonomic System."——Dr. Delivan A. MacGregor, Wheeling, president-elect, West Virginia State Medical Association, addressed the Kanawha County Medical Society, Charleston, December 13, on medical economics.

GENERAL

Dermatologic Meeting.—The Mississippi Valley Dermatological Society will hold a meeting in Kansas City, January 14, with headquarters in the President Hotel. Dr. William W. Duke, Kansas City, Mo., as the guest speaker for the morning session, will talk on "Allergy Phase of Dermatological Conditions." The afternoon session will be a clinic in the Kansas City General Hospital, to demonstrate diagnosis and results of treatment in unusual dermatologic cases. A round table discussion will be held at the banquet in the evening. The territory covered in the Mississippi Valley Dermatological Society includes Omaha, Oklahoma City, Topeka, Kan., St. Joseph and Greater Kansas City.

Society News.—Dr. Samuel C. Plummer, Chicago, was elected president of the Western Surgical Association at the annual meeting in Madison, Wis., December 10, succeeding Dr. Harry P. Ritchie, St. Paul. Drs. Peter A. Bendixen, Davenport, Iowa, and Arnold S. Jackson, Madison, were named vice presidents and Frank R. Teachenor, Kansas City, Mo., reelected secretary. The next meeting will be in Cincinnati, in December, 1933.——The American Psychoanalytic Association will hold its midwinter meeting in the New York Psychoanalytic Institute, New York, December 27.——The American Society of Radiographers will hold its annual convention in Rochester, N. Y., May 31-June 3. The executive secretary is Alfred B. Greene, B.Sc., Glen Lake Sanatorium, Oak Terrace, Minn.

Student Health Problems.—The American Student Health Association will hold its thirteenth annual session in New York, December 28-29, at the Hotel Astor. There will be discussions on the administrative organizations for student health by representatives of Harvard, Columbia, Michigan, California, Stanford, Michigan State Normal College, Bryn Mawr, Mount Holyoke and North Carolina College for Women. Addresses will be presented on tuberculosis, appendicitis, heart disease and ringworm of the feet as seen in college students. Among other speakers will be Drs. Edgar Van Norman Emery, New Haven, on "Instruction of College Students in Mental Hygiene"; Joel E. Goldthwait, Boston, "Posture and Body Mechanics as a Basis of Health and Disease"; Norman E. Titus, New York, "The Action of Physical Therapy in the Treatment of Athletic Injuries," and Robert T. Frank, New York, "Hormonal Disturbances as a Cause of Functional Menstrual Disorders."

Dr. Graham Awarded Medal.—The Southern Medical Association at its annual meeting in Birmingham, November 16, awarded its gold research medal to Dr. Evarts A. Graham, St. Louis, Bixby professor of surgery, Washington University School of Medicine, St. Louis, for his work on the diagnosis and pathology of inflammatory diseases of the gallbladder and liver. This is the fourth time the medal has been awarded. The committee on scientific awards which recommended Dr. Graham consisted of three men who had previously received the same honor for distinguished investigation in medical subjects: Drs. Charles C. Bass, New Orleans; John Shelton Horsley, Richmond, Va., and Kenneth M. Lynch, Charleston, S. C. The association presented the first award among the scientific exhibits to Dr. Roy R. Kracke, associate professor of bacteriology and pathology and chairman of the department, Emory University School of Medicine, Atlanta, for an exhibit on the experimental production of leukocytosis; second award to Dr. William C. Langston and Paul L. Day, Ph.D., of the University of Arkansas School of Medicine, Little Rock, for their exhibit on cataract in vitamin G deficiency, and the third to Dr. Seale Harris, Birmingham, for a report of clinical studies on hyperinsulinism. Dr. James R. Garber, general chairman of the Birmingham meeting, in appreciation of the twenty years' service of Mr. C. P. Loranz as secretary-manager of the association, presented him with a loving cup as a personal gift.

Increase in Influenza.—That there has been an increase in influenza for the United States as a whole is indicated by preliminary figures appearing in *Public Health Reports*, December 2, for the week ended Nov. 19, 1932, compared with those of Nov. 21, 1931. Thirty-seven cases were recorded in the New England states for the week ended November 19, as compared with eighteen for the week ended Nov. 21, 1931. For the East North Central states, 131 cases were noted, as compared with 30 in 1931. In the nine South Atlantic states, 540 cases were noted, as compared with 569 for 1931. In this group the greatest number of cases (500 for this year and 452 for 1931) were reported in South Carolina. No cases were reported for Virginia in either year. In the East South Central states, 530 cases were listed for 1932 and 73 for 1931. In this group Tennessee showed a decided increase this year, with 271 cases reported as against twenty-six for 1931. Alabama noted 204 cases, as compared with forty-seven for 1931. In the four West South Central states, 149 cases were reported for 1932, as compared with 46 in 1931. In the seven Mountain states, where a total of 667 cases were noted, although no figures were listed for either year for Wyoming and Colorado, Utah showed a decided increase, from 10 cases in 1931 to 333 in 1932. In the three Pacific states, which reported 985 cases this year and 100 last, California reported the greatest number, 903 as compared with 72 for 1932. Totals for the two periods were 3,086 cases for the week ended Nov. 19, 1932, as compared with 873 for the week ended Nov. 21, 1931.

Medical Section of Science Association.—A symposium on tuberculosis will open the scientific program of Section N (medical sciences) of the American Association for the Advancement of Science and Associated Societies, which meets in Atlantic City, December 27-31. Participating in this session will be Dr. Camille Kereszturi and Lucy Mishulow of the New York City Health Department, and Morton C. Kahn, Ph.D., and Dr. Eugene L. Opie of Cornell University Medical School. In a symposium on our present knowledge of the hypophysis cerebri, the speakers will be Dr. Herbert M. Evans, San Francisco; Philip E. Smith, Ph.D., New York, and Drs. Eugene M. K. Geiling, Baltimore; George W. Corner, Rochester, N. Y.; Harvey Cushing, Boston, and John J. Abel,

Baltimore. The following will be heard in a third symposium on filtrable viruses and filtrable virus diseases: Roscoe R. Hyde, Ph.D., Baltimore; Dr. Earl B. McKinley, Washington, D. C.; Edmund V. Cowdry, Ph.D., St. Louis, and Dr. Hans Zinsser, Boston. The remainder of the program will include papers by the following physicians:

Max Theiler of the International Health Division, Rockefeller Foundation, Susceptibility of Common Laboratory Animals to the Virus of Yellow Fever.
Thomas M. Rivers of the Rockefeller Institute, Nature of Viruses and Pathology of Virus Diseases in Relation to Serum Therapy.
William H. Park, New York, Poliomyelitis: Its Epidemiology, Prevention and Treatment.
Howard T. Karsner, Cleveland, Medieval Guilds of Medical Interest.
Henry E. Sigerist, Baltimore, Edwin Smith Surgical Papyrus.
Harvey Cushing, Boston, Anatomical Tables of Ercole Lelli.
William H. Welch, Baltimore, Antony van Leeuwenhoek: A Tribute on the Tercentenary of His Birth.

Section N will also hold joint sessions with Section L, the History of Science Society and the American College of Dentists. A general address will be given to the section by Russell W. Bunting, D.D.S., Ann Arbor, Mich., on "Recent Developments in the Study of Dental Caries."

Bequests and Donations. — The following bequests and donations have recently been announced:

Free Hospital for Women, Brookline, Mass., $100,000 by the will of the late Robert Jordan.
Montgomery Hospital, Norristown, Pa., $20,801.79 from the estate of Margaret M. Beard.
St. Mary's Free Hospital for Children, New York, $25,000 by the will of Delancey Nicoll.
Methodist Hospital, Indianapolis, $25,000 by the will of H. C. Shobe.
Lenox Hill Hospital and New York Society for the Relief of the Ruptured and Crippled, New York, $4,000 each under the will of Theodore Tiedemann, Greenwich, Conn.
Methodist Episcopal, Long Island College, Brooklyn and Caledonian hospitals, Brooklyn, $5,000 each by the will of Alfred W. Jenkins.
House of St. Giles the Cripple, Garden City, L. I., will eventually receive $50,000 as a residuary bequest from the will of Mrs. Sarah E. Stewart, Bronxville.
Montefiore Hospital, New York, $7,000 by the will of the late Samson Lachman.
Lutheran Hospital of Manhattan, $5,000 from the late Anna Hanschen.
Servants of Relief for Incurable Cancer, New York, $64,588 by the will of Bernard Downing, former state senator, who died May 25, 1931.
Memorial Methodist Hospital, Mattoon, Ill., $940 by the will of the late John W. Clark, Indianapolis.
Woman's Hospital of Philadelphia, $30,000 under the will of Miss Mary S. Parry.
Columbia University, $2,500 from the W. K. Kellogg Foundation for the foundation's fund in the department of the practice of medicine; $1,000 from Dr. Cornelius G. Coakley, for the department of pathology.
St. Luke's Hospital, Kansas City, $100,000 by the will of Henry T. Poindexter.
St. Louis Children's Hospital, $30,000 by the will of Frances C. Dolph.
Samaritan Hospital, Ashland, Ohio, $30,000 by the will of the late Mrs. Amanda Fox Horning.
Jewish Hospital Association, Philadelphia, $2,000 under the will of the late Mrs. Beatrice Schwartz.

Meeting of Orthopedic Surgeons.—The first annual meeting of the American Academy of Orthopedic Surgeons will be held in the auditorium of Northwestern University Medical School, Chicago, January 12. Symposiums will be conducted by the following physicians:

PARATHYROIDISM

Max Ballin, Detroit
Plinn F. Morse, Detroit
John D. Camp, Rochester, Minn.
Dallas B. Phemister, Chicago

NEUROLOGIC SURGERY

Henry W. F. Woltman, Rochester, Minn.
Adrien VerBrugghen, Chicago
Lewis J. Pollock, Chicago
Eric Oldberg, Evanston, Ill.

CIRCULATORY DISTURBANCES OF THE EXTREMITIES

Géza De Takáts, Chicago
Raymond W. McNealy, Chicago
James T. Case, Chicago

ARTHRITIS

John Albert Key, St. Louis
Philip S. Hench, Rochester, Minn.
MacNider Wetherby, Minneapolis
Joseph A. Freiberg, Cincinnati
Melvin S. Henderson, Rochester, Minn.
Willis C. Campbell, Memphis, Tenn.
Herman L. Kretschmer, Chicago

Other symposiums will be given on low back pain, surgery of the spine, surgery of the hip, surgery of the upper extremity, stabilization operations on the foot, surgery of the hand, and osteomyelitis. There will also be a discussion of physical therapy in orthopedic surgery. In addition, addresses will be given, among others, by Drs. Dean Lewis, Baltimore, Elliott G. Brackett, Boston; Alfred W. Adson, Rochester, Minn.; Frederick J. Gaenslen, Milwaukee; Michael Hoke, Warm Springs, Ga., and Fred Albee, New York. The Clinical Orthopedic Society will hold its annual meeting, January 13-14. Sessions will be conducted at Northwestern, Billings Hospital, University of Chicago and the University of Illinois Medical School. A tour of the Century of Progress has also been planned. The American Academy of Orthopedic Surgeons was organized in October, 1931. Dr. Edwin W. Ryerson, Chicago, is the president, and Dr. Willis C. Campbell, Memphis, secretary. Dr. Philip Lewin, Chicago, is chairman of the program committee.

FOREIGN

Research Institute in Copenhagen.—A new institute for research in experimental biology established through cooperation of the Rockefeller Foundation, the Carlsberg Foundation in Denmark and the Danish government was opened in Copenhagen, October 19. Dr. Albert Fischer, who has for several years been director of the laboratory for cellular physiology at the Kaiser Wilhelm Institute in Berlin, has returned to Copenhagen as director of the new institute.

New President of International Hygiene Office.—Sir George S. Buchanan, senior medical officer of the British Ministry of Health, has been appointed president of the Permanent Committee of the Office International d'Hygiène Publique, succeeding M. Otto Velghe, secretary-general of the Ministry of the Interior and of Hygiene at Brussels, who had held the position since 1919. Fifty-one governments now participate in the International Convention of Rome (1907), under which the public hygiene office was established. It is principally concerned with international conventions and agreements on health questions of which the International Sanitary Convention of 1926 is chief. The permanent committee is also the advisory council of the Health Organization of the League of Nations.

Medical Conditions in Russia.—The following articles, from the New York *World-Telegram* of December 5 and the New York *Times* of December 8, are examples of the conflicting evidence that is being presented concerning health activities in Russia:

WORLD-TELEGRAM

Hospitals in Russia are poorly equipped, overcrowded, often filthy, and sanitation is almost totally neglected throughout Stalin's domain, Dr. Harry C. W. S. de Brun, associate professor of surgery at the Polyclinic, declared today.

Dr. de Brun, recently returned from a tour of inspection of Russia's major medical centers, said that, from the physician's standpoint, the conditions under which the great masses of the Russian people exist are unthinkable.

"Although the masses are poorly clad, malnourished and exposed to all manner of contagion, with the proportion of sickness correspondingly high, Russian hospitals are unbelievably inadequate both in equipment and personnel," Dr. de Brun said.

"Most of the good men over there are old men. They actually have to pay youngsters to get them to study medicine. They feel that there's more prestige in being in industry.

"I called on one of the foremost surgeons in Russia, famous for his discoveries and his technique in the days before the war. I've been in Russia before the war, and I can tell you that there was no country in Europe to surpass her, medically speaking. Well, I called on the surgeon, an old chap now, and it was pathetic.

"He apologized for the suit he was wearing. 'It is three years old, but my best,' he said. It must have been shabby when new. He wore shoes that would have looked tragic in a bread-line—shoes cost $45 a pair.

"But if this surgeon's condition was saddening that of his hospital was simply appalling. He knew it, but said he could do nothing.

"'I just keep on working,' he told me in a tired voice. 'One must do that. My life is practically over, and if those in authority knew how I felt about this thing my work would be over, too, much faster.'

"Within the old, stately and decaying buildings that housed the hospital were dirt and extreme overcrowding. The wards were filthy. Instruments were old and rusty. I saw post operative stomach cases fed black bread and tea. Diets, they told me, were too expensive. Often the surgeons stinted themselves to alleviate the suffering of their patients."

THE TIMES

The widespread and thoroughly organized medical research and public welfare facilities in Soviet Russia were reported yesterday by John A. Kingsbury, director of the Milbank Memorial Fund, to executives of the National Tuberculosis Association, 450 Seventh Avenue. Mr. Kingsbury, former Commissioner of Public Charities of New York City, reviewed his impressions of a recent trip to Russia, on which he was accompanied by Sir Arthur Newsholme, former chief medical officer of the Local Government Board of England and Wales, who is making a survey for the fund.

"Russia unquestionably has the most comprehensive health scheme in the world today," Mr. Kingsbury said. "There is a complete integration of medical services without redundancy or inefficiency, founded upon preventative clinics and recreational establishments. The experimental attitude of Soviet scientists toward health promotion augurs success."

Mr. Kingsbury said there now were eight vast polyclinics in Leningrad and twelve in Moscow and 106 special research institutions and thirty-seven medical colleges in the Union, all on a scale comparable to or surpassing those in the United States. The physical culture societies had an enrolment of more than 4,000,000 last year, he declared, revealing that the younger members had pledged themselves each to teach ten backward adults to read. Among the other health measures enumerated by Mr. Kingsbury were a national aerial ambulance service and night and day tuberculosis sanatoria.

He also reported that more books had been published in Russia last year than in the United States, England and Germany together, and declared the preventative rather than penal attitude toward crime had virtually eliminated social vices. He was especially impressed by the enormous tractor factories, which, he said, threatened to curtail American automotive purchases. He found the workers enthusiastic with no signs of starvation or unemployment.

Government Services

Statement of General Hines on Veterans' Relief

Brig. Gen. Frank T. Hines, administrator of veterans' affairs, offered a comprehensive statement, December 9, of the present status of veterans' relief before a joint congressional committee created to investigate laws relating to veterans' relief for the purpose of recommending economies.

Veterans' relief in 1931 cost the government $1,073,947,559, or nearly one third the total federal budget. The present system of relief has grown out of the Bureau of War Risk Insurance created in 1914 to provide war risk insurance on bulk cargoes and American freight vessels. After the entrance of the United States into the World War in 1917, a new war risk insurance act provided allotments to families, and insurance and compensation for death and disability. This act contained a provision that the injured person should receive, in addition to compensation, "such reasonable governmental medical, surgical and hospital services and such supplies, including artificial limbs, trusses and similar appliances as the director may determine to be useful and reasonably necessary." After the armistice, hospitals urgently needed to care for injured soldiers returning from Europe were built and administered by the Public Health Service until 1921, when the responsibility was transferred to the Veterans' Bureau.

Medical care and compensation were at first limited to those disabled in line of duty, but the provisions have been so expanded since the original law that veterans of all wars are now entitled to hospitalization regardless of the nature or origin of their disabilities. The Veterans' Administration now has fifty-nine hospitals and is using part of the facilities of forty-nine other governmental hospitals and 255 civilian hospitals.

The administration had available at the end of September in government hospitals 46,293 beds with a total hospital load of nearly 44,000 patients. When all construction thus far authorized has been finished, 54,855 beds will be available to beneficiaries of veterans' legislation, a number sufficient to meet the estimated load for 1937, assuming that veterans of all wars are given a mandatory right to hospitalization. It is estimated that if no restrictions are placed on admission of veterans with disabilities not of service origin the peak load under the present World War act will exceed 81,000 in 1965, which will make necessary an additional 26,000 hospital beds.

The increase in the cost of veterans' relief with the passing of time was brought out. In 1879, fourteen years after the Civil War, pension costs for that war amounted to $26,435,204; in 1921, pensioners from the Civil War drew $246,584,639, nine times the earlier figure. In 1912, fourteen years after the Spanish-American War, there were 28,850 pensioners, for whom the disbursement was $3,971,086; by 1918 that amount had increased twenty-eight times, to $113,758,457. In 1931, fourteen years after the World War, the government was spending for comparable benefits $511,678,902. Since the enactment of the earliest relief act in 1789, there has been expended for veterans of all wars $15,370,887,853.25. Of this amount $6,318,108,733.42, or nearly half, has been for World War veterans alone.

Included in the expenditure for relief of veterans since the World War was $644,000,000 for vocational rehabilitation, which was discontinued in 1928. The "bonus," or adjusted service certificate, which has been extended to 3,961,340 veterans or dependents of deceased veterans, has a total value of $3,702,997,555. Payments to retired emergency officers under authority of the act of May 24, 1928, amount to about $900,000 a month. In 1930 an act was passed authorizing disability allowance to veterans of the World War who entered service prior to 1918, who served ninety days or more and who have a 25 per cent disability; under this act 879,965 claims have been filed to date, and 50 per cent of the claimants have been awarded benefits. June 30, 1932, payments were being made to 407,584 veterans disabled in civil life at a cost of $73,470,000 for the fiscal year. General Hines said that on September 30 last there were 1,307,322 living and deceased veterans of all wars, on account of whom the gross disbursements for the month amounted to $45,774,163.

Payments of benefits to war veterans in the United States were compared with those in Great Britain and France. Based on the number reported as either dead or wounded, the annual expenditure of Great Britain is $58 per man; of France, $51, and of the United States, $2,668.

General Hines concluded: "If inequalities and inconsistencies in existing laws are to be corrected and expenditures to be kept within reasonable bounds, future steps having to do with veterans' relief must be taken cautiously and only after the most careful and impartial consideration."

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 26, 1932.

A Lecture on Diet

So much nonsense is written today on diet that a lecture on "Diet, Old and New," by Dr. Chalmers Watson of Edinburgh, a leading dietitian at the Royal Institute of Public Health, London, is welcome. He began by quoting distinguished surgeons as saying that future progress in medicine will occur at the expense of surgery. Of that progress the most likely directions were along the lines of improved nutrition and the influence of the mind on disease. At the annual meeting of the National Sanitary Association, Professor Cathcart had said that any material progress in medicine and improvement in the national health was more likely to be made through a change in the customs and habits of the people than through any other agency. Reminders of the limitations of medical skill were being continually presented, and the most recent reminder was the group of diseases classified as "rheumatism," which cost the country $100,000,000 a year. He deprecated the tendency to look for the remedy mainly in the further provision of clinics for "rheumatism," "heart disease" and the like and to spend more money on research. The remedy much more likely lay in teaching the public the principles of sound nutrition. Too little attention had been given to the changes in the feeding habits of the people in the past two generations and their effects on health. There were only two complete natural foods in existence—milk and eggs. No subject of nutrition was of greater importance than provision of good, fresh, untreated milk from tuberculin-tested cows.

MEAT

The amount of imported meat consumed in this country increased from 3 pounds per head in 1850 to 50 pounds in 1900, and since the latter date it had increased to 60 pounds. There was no reason for thinking that this change had been beneficial, but there was also no conclusive evidence that it had been detrimental. Meat was a valuable article of diet and the fresher it was the greater was the nutritive value. But it had the disadvantage compared with carbohydrates that its decomposition products were more toxic and in excess produced hardening of the arteries and other changes. Many authorities held that rheumatism, chronic catarrh, kidney disease, high blood pressure and malignant disease were also results. But no conclusive evidence was provided by the microscope or test tube and probably never would be. The modern tendency to exaggerate the importance of the laboratory at the expense of skilled clinical observation was unfortunate and also costly. He agreed with Lord Moynihan that excessive specialization in modern medical research was in some directions retarding rather than advancing progress.

BREAD

The chief source of carbohydrate food in this country was wheat and oats. In former days the entire grain was used in making bread. Under modern conditions the fat-bearing germ and the vitamins were removed. Here again it was impossible to submit any proof that white bread was injurious, but unless it could be shown that the deficiency could be made good by an artificially prepared substitute—which was not in accord with clinical experience—the public would be well advised in seeing that a reasonable amount of the staff of life was made from whole grain.

SUGAR

Sugar as it was now being used was not a natural food but an elaborately manufactured commercial product. In nature it existed only in a very diluted form in plants. Its annual consumption had increased from 17 pounds per head in 1819 to

90 pounds in 1928. A large part of that consumed was surplus to body requirements and threw a strain on the tissues. But here again there was no conclusive scientific evidence of injury. The power of adjustment of the human body was wide but not unlimited. There was a prevailing opinion in the profession that the modern excessive use of sugar was detrimental, lowering the general resistance to disease and predisposing to catarrh, dental disease and other troubles. Hence the "eat more fruit" movement was to be commended if it restricted the consumption of sugar.

FRESH FOODS

If people understood the importance of fresh foods, they need not worry about vitamins. Recently Professor Watson had made observations on fresh foods in one of the Edinburgh tuberculosis hospitals. The results showed the necessity for revision of the dietary in our present hospital system. The lead should be taken in the hospitals associated with medical schools. The public would then slowly but surely learn that the problem of what to eat when ill was of much less importance than what to eat when well.

Road Accidents

The National "Safety First" Association in cooperation with the Ministry of Transport is conducting a research into the circumstances of road accidents. During the two months July and August of the present year there were in England and Wales 1,017 fatal road accidents, in which 1,059 persons were killed—an average of seventeen a day. Less than 2 per cent of the accidents are classed as unavoidable, and over 85 per cent are ascribed to human failure, or errors of judgment, as distinct from road or vehicle defects or other causes. Pedestrians were the victims in 38 per cent, as compared with over 50 per cent in the corresponding two months of 1929. A classification of the persons killed shows that 453 were motorists, 406 pedestrians, 193 pedal cyclists and 7 horse users. Most persons were killed on Saturdays, for which the average was 24. Over 70 per cent of the deaths occurred in cities or built-up areas, and 29 per cent in the open country. Greater London had one fifth of the total number of accidents. Half of the motor drivers involved had over five years' experience. Two thirds were between the ages of 16 and 19, which has given rise to the criticism that these boys should not drive. One eighth of the accidents occurred on road bends and one fourth at road junctions. For children the most dangerous age is between 4 and 5 years, and the casualties are almost entirely due to running into the roadway. For children between 13 and 16 the accidents are almost all due to cycling. In children, precipitate action is the principal cause of the deaths. Pedestrians might be expected to be safe on the footpath, but twenty-four fatal accidents occurred on the pathway or the verge of it, including cases in which some part of the vehicle projected over the path. These accidents resulted in twenty-six deaths, of which twenty-one occurred to pedestrians.

A Study of the Deaf

Dr. Alfred Eicholz has made an exhaustive investigation of the deaf in England and Wales, which forms a report to the Ministry of Health. The deaf and dumb, of whom there are 34,000, receive particular consideration. It is satisfactory to note that their number has fallen in recent years. Of the deaf and dumb children, 90 per cent attend certified special schools. It is urged that they should receive special vocational training. The public health administration is doing much to arrest child deafness and postnatal deafmutism, but there is no evidence that the group of children born deaf can be reduced. On the whole, the deaf and dumb suffer little from the physical point of view in capacity for industrial life. Their difficulties in social relations and lack of public sympathy tend to throw them together for companionship and promote marriages among themselves. Dr. Eicholz thinks that it is not practicable to enjoin abstinence from parenthood for persons who are able to maintain themselves and discharge the usual functions of civil life. But mental disadvantage is shown by the fact that the proportion of deaf mutes who suffer from mental diseases is seven times as great as that of hearing persons. The practical result of this investigation is that Dr. Eicholz recommends the Ministry of Health to urge on the local health authorities closer attention to the early and continuous treatment of infants suffering from ear defects and recommends that the board of education ask the local education authorities to improve their detection of these defects and arrange for the supervision of all cases by physicians with otologic experience. Holding that more precise knowledge of deafness is required, he suggests that the Ministry of Health and Medical Research Council institute a study of the age incidence, causes and treatment of ear defects.

PARIS

(From Our Regular Correspondent)

Nov. 16, 1932.

The Congress of Orthopedics

At the fourteenth French Congress of Orthopedics, presided over by Professor Froelich of Nancy, the first topic on the program dealt with the surgical treatment of scolioses. In his introductory paper, Dr. Marcel Fèvre of Paris reviewed the methods proposed by Guérin, Volkmann, Chipault, Kidner and Galloway, Hibbs, Kleinberg, Armitage Whitman, Tuffier and Mauclaire. The only treatment to be considered today is the ankylosing operation, by means of extra-articular arthrodeses. In paralytic scolioses the prognosis is bad and operation should not be resorted to until two years after the attack of poliomyelitis. In congenital scolioses, osteosynthesis is indicated only in the cervicodorsal types, the others having little tendency to become aggravated and the orthopedic appliances being then sufficient. Rachitic scolioses are not to be operated on other than during the period of adolescence, in case no improvement has been obtained from antirachitic treatment. The so-called essential scolioses present various indications for intervention. Osteosynthesis is not, therefore, to be considered other than in grave forms that are progressing in spite of the orthopedic treatment; in relapsed forms that do not end in fixation; in painful scolioses, in marked gibbosities, and, if the general condition of the patient still permits intervention, in scolioses associated with Pott's disease and in certain traumatic or postpleuritic scolioses. In France, osteosynthesis is generally reserved for the cases in which orthopedic treatment has failed, whereas in America early operations are the vogue. Fèvre gave a complete digest of the statistics and a survey of all the technics proposed. He criticized the Albee operation and gave preference to the Halstead operation and approved finally the technic of G. Huc, who uses a tibial graft placed in an oblique slit made at the base of the removed spinous processes. That is the operation performed in the orthopedic department of Professor Ombrédanne in Paris. In the long discussion that followed, each speaker gave the results of his personal experience.

EARLY TREATMENT OF ACUTE, NONTRAUMATIC OSTEOMYELITIS OF THE LIMBS

The second paper was on the early treatment of acute, nontraumatic osteomyelitis of the limbs, by Mr. Pierre Ingelrans of Lille. He discussed the theory of Lannelongue, who considers the bone marrow the point of origin of the infection. The Germans and the Americans consider the primary infection to be in the bone tissue, which constitutes a contraindication to trephination as incurring the danger of increasing the bone destruction, the operation being confined to a large incision in the periosteum. He discussed then subperiosteal resection according to the Leveuf method and pointed out the excellent results. The essential thing is to operate before the periosteum has undergone grave changes, so as to permit regeneration of the bone tissue. Though this form of resection

cannot yet be regarded as the preferred method, it is adapted to selected cases in the hands of experienced operators. During the discussion, Mr. Albert Mouchet vaunted the results that he had secured from extensive diaphyseal resections, with rapid bone regeneration. Lasserre of Bordeaux preferred trephination to subperiosteal resections and combines vaccinotherapy with it. Mr. Billet reserves vaccinotherapy for the ordinary cases and trephination for cases that are grave from the start.

Among the nonofficial communications were those of Mr. Delchef of Brussels on laminectomy and rachisynthesis in vertebral fractures with medullary compression, Marcel Meyer and Weiss of Strasbourg on sporotrichosis of the bone, Mr. Ugo Camera of Turin on interventions to prevent a development of contractures and vicious attitudes in the convalescent period of poliomyelitis, Mr. Mauclaire of Paris on the periarticular calcifications and ossifications of the shoulder, Tridon, Wibaux and Maly of Berck on the Vernes seroflocculation test in the diagnosis of tuberculosis of the bone and joints, Mr. Chialoranza of Naples on the treatment of fistulas of the bone, and Mr. Delchef of Brussels on transplantation of tendons.

The meeting next year will be under the chairmanship of Mr. Paul Mathieu of Paris. The two main topics will be: "Open Reduction of Congenital Luxations of the Hip," to be presented by Mutel of Nancy, and "Dry Arthritis of the Spinal Column," by André Richard of Berck.

The Otorhinolaryngologic Congress

At the Otorhinolaryngologic Congress, Dr. Hautant said in his inaugural address that the development of otorhinolaryngology, during the previous six years, made it necessary to divide it into branches, such as phoniatrics and bronchoscopy, which are now flourishing. Maurice Bouchet and Louis Leroux presented a paper on acute and chronic ethmoiditis, describing the evolution of the pathologic anatomy. The bone lesions are constant. In the acute cases that do not heal spontaneously but become suppurative, operation soon becomes imperative; but the indications are sometimes difficult to establish. The best signs are the disappearance of ocular motility, the immobility of the pupil and corneal anesthesia. Palpebral edema, chemosis and exophthalmos are not sufficient. Chronic ethmoiditis may be suppurative or otherwise. The former is rarely isolated and its diagnosis may lead to confusion with atrophic rhinitis and degeneration due to polyps. Chronic nonsuppurative ethmoiditis plays an important part in headaches, chronic catarrhs and nasal obstructions. During the discussion, Jacques of Nancy expressed the view that ethmoiditis is not an independent disease and emphasized the importance of an activating factor associated with tuberculosis, syphilis or hereditary debility. Escat of Toulouse emphasized the attacks due to retention and considered all caseous ethmoiditis as associated with caseous sinusitis.

The Centenary of Dr. Guéniot

Ceremonies were held at the Academy of Medicine in honor of the hundredth anniversary of Dr. Guéniot's birth. The minister of public instruction and the minister of public health were present, and the attendance was large. Mr. Guéniot made his formal entrance on the arm of General Gouraud, military governor of Paris and the hero of Dardanelles (now with one arm amputated). All members of the academy were present, together with guests from the élite of Paris. Eight addresses were delivered in Guéniot's honor; among others, those of the president of the academy, General Secretary Achard; Bar, past president of the Société d'obstétrique; Mr. Mourier, director of the Assistance publique; Pierre Duval, president of the Société de chirurgie, and the minister of public instruction, who made a witty allusion to the longevity of scientists. Mr. Guéniot was first a surgeon, then became a hospital obstetrician, and, during most of his scientific career, was at the Hôpital de la maternité. He is the Nestor of the members of the academy, of which he is a past president. He walks with ease, his vision is excellent, and he has no infirmity other than impaired hearing, which made it easier for him to listen to so many addresses about himself. In addition to his scientific works, he published, two years ago, a small book on the "Art of Living Long," which is replete with good-natured wisdom. He does not recommend abstinence from anything but advises moderation in all things; he does not repudiate tobacco, wine or even a little of the stronger alcoholic beverages. His secret is never to stop working, except as one observes that fatigue is approaching. In connection with this celebration, reference was made to the numerous examples of longevity among the present members of the Academy of Medicine. Hayem is 87 years old, Pinard 88, Hutinel 83, Richet 82, Pouchet and d'Arsonval 81, and Quénu 80.

BERLIN

(From Our Regular Correspondent)

Nov. 7, 1932.

The German Orthopedic Congress

The Deutscher Orthopädenkongress, this year, considered injuries due to accidents. The unusually large attendance was doubtless due to the practical character of the program. Kreuz of Berlin discussed the anatomy and the pathology of fracture of the neck of the femur and recommended for the treatment of a recent fracture the Whitman plaster cast and removal of weight for a long period, with application of a splint. Most of the speakers agreed with this conception. The extension apparatus must go. Böhler of Vienna had successfully applied the Smith-Peterson nail extension and emphasized that thereby the length of treatment was much shortened. Zur Verth of Hamburg, who gave statistics in 400 cases, said that 30 per cent of the diagnoses of a recent fracture of the neck of the femur were unwarranted. Pseudarthrosis of the neck of the femur is sometimes treated with a tibial graft, after the Lexer-Lange method, or it is osteotomized below the trochanter, which often results in consolidation. It may likewise be treated with resection of the head and lowering of the trochanter, a method that was advocated by Spitzy of Vienna.

CAUSES OF DEFECTIVE HEALING IN BONE FRACTURE

Among the causes of defective healing in bone fractures Böhler mentioned, in addition to faulty adjustment and poorly applied bandages, the insufficient length of fixation with too early passive movements and massage and the too frequent operations on recent fractures. Hohmann of Frankfort described the best method for remedying poorly healed fractures (deviation of axis, shortening, stiffness or flail condition of the joints, pseudarthrosis, late results of infected fractures). He outlined the methods of orthopedics that are often effective. Blencke of Magdeburg discussed difficult fractures from the standpoint of accident insurance. They are not suitable for domiciliary care but should be treated in properly equipped institutions. Whether a fracture that is not doing well should be operated on and, if so, when, is a question in which the amount of the sick benefit plays an important part. Restoration of working capacity must be the final aim. The problem of pseudarthroses and that of reflexive atrophy of the bone, which is not yet settled, were discussed at considerable length.

While it had been assumed that the treatment of recent vertebral fracture by six weeks' rest in bed, with massage, without reference to the form of fractured vertebra, was solved, Böhler of Vienna marked out a higher goal. He sets the recent vertebral fractures, applies a plaster cast to the spinal column in lordosis, and allows the patient to walk early and to bring weight to bear on the injury.

INJURIES OF THE KNEE JOINT

Internal injuries of the knee joints and injuries of menisci and crucial ligaments, which have become of great importance since the widespread development of sport activities, found in

Wittek of Graz one who in 300 operative cases was able to restore 96 per cent of the patients to full working capacity. Knoll of Hamburg read a valuable paper describing his experiences as physician to athletic associations. In recent lacerations of the capsule he punctures early to withdraw the blood effusion and compresses the joint. Delayed puncture lessens the prospects for complete recovery. A question of some importance in accident insurance is whether an injury of the meniscus always represents a genuine accident. Examinations of menisci removed by operation revealed frequently cystic or fatty degeneration; some investigators, therefore, raise the question of a degenerative condition in which the accident (which is often slight) constitutes only the last link in the chain of events.

ITALY

(From Our Regular Correspondent)

Oct. 15, 1932.

Meeting of Academy of Medicine of Turin

At a recent meeting of the Academy of Medicine of Turin, Professors Giordano and Vigliani reported the results of their research on the circulation time of the blood, with Leschske's calcium chloride method and Wollheim's fluorescein method. The circulation time was found to be diminished in various types of anemia, in exophthalmic goiter and in acute glomerulonephritis. It is increased, and sometimes to a high degree, in patients with cardiac decompensation. They applied Gollmann's acetylene method for the study of the average speed of the circulation in sick and in healthy persons. This method gave excellent results. It cannot, however, be applied in all morbid conditions, particularly in patients who are notably dyspneic (in which cases it is impossible to secure a perfect mixture of the gases) and in patients affected with extensive pulmonary lesions, in which the relation between the tension of the gas in the alveoli and the quantity of gas contained in the blood is variable.

Bettazzi, introducing pellets of tar into the renal pelvis and into the calices, brought about the formation of epithelial structures consisting of hyperplasia, papillomatous proliferations and pseudo-adenomatous epithelial nests that were identifiable with so-called Brunn's nests but without the characters of infiltration and invasion peculiar to malignant tumors. These neoplasias were not provoked by infective agents nor by a mechanical stimulus but by the chemical action peculiar to tar. In the present state of his research (the longest period of observation since the operation being from 150 to 160 days), the speaker cannot, however, assert that tar has a specific oncogenic action on the renal pelvis and on the ureters of experimental animals. Dominici and Marengo gave the results of their studies on the pathogenesis of icterus in the new-born. From the outcome of the qualitative and quantitative trituration of the bilirubin in the maternal blood, in the umbilical cord and in the blood of the new-born, from the second to the thirteenth day of life, the speakers assumed that for the pathogenesis of icterus and of postnatal bilirubinemia two factors must be taken into consideration. There is an increase in the destruction of the blood, as demonstrated by the extrahepatic nature of the bilirubin, and a retardation in the elimination of the circulating bilirubin substance, which tends to show an imperfect excretory functioning of the hepatic parenchyma.

Allodi furnished a contribution to the knowledge of amebiasis and its diffusion in Piedmont. During the preceding year, he diagnosed twenty-three cases of amebiasis. In the majority of the cases, however, the patients were such as might have contracted the disease in regions with a tropical or subtropical climate. In only three cases could one assume that the infection had been contracted in the northern sections of Italy. Emetine therapy proved efficacious in all the cases except two.

Vigliani discussed the arterial pressure of workmen who handle lead. From his research, he concluded that lead does not cause an increase in the median arterial pressure of workmen who handle it. Such workmen are no more exposed to the danger of developing high blood pressure than are the workmen employed in other industries.

Vigliani and Olivetti observed that the sedimentation speed of erythrocytes in workers in lead is somewhat increased. They did not think, however, that the fact is due to colloidochemical disturbances of the blood plasma.

Herlitzka, Battistini and Cossu proposed the Somogyi deproteinization technic as a simple and exact method for the determination of galactosemia. The technic presents some advantages over former methods, among which is the opportunity of recognizing the possible presence in the blood of foreign sugars not easily fermentable. The same authors conducted research on the probable presence of nonfermentable sugars in the blood of gravidae and on the glycemic index before and after birth. They found that in pregnancy continued to term there is a foreign sugar present that is not easily fermentable (in an average concentration of 15 mg. per hundred cubic centimeters of blood), which was probably galactose. This sugar causes a marked increase in the residual reduction, whereas the total reduction is diminished and the actual glycosemia is lower.

Dominici and Oliva discussed hemoglobin exchange in certain disorders of the hematopoietic system. According to the speakers, hemoglobin exchange is increased, especially with reference to the percentage of hemoglobin that the patient possesses, which signifies an increased destruction of the blood. By irradiating the spleen with roentgen rays, the elimination of biliary products is increased.

Griva and Asinelli spoke on nephritic anemias, emphasizing that these morbid forms have always the characters of a hyporegenerative anemia the cause of which may be sought in the complex of the phenomena of renal insufficiency and of the changes brought about by the intoxication resulting therefrom. Such intoxication acting on the spinal marrow, sometimes in an acute and sometimes in a chronic manner, is the essential cause of paralysis of the erythropoietic function. The progress of nephritic anemias follows the course of a fundamental disease.

The Aschheim-Zondek Test

Rossi of Naples presented recently to the Società napoletana di chirurgia a communication on the use of female rabbits in the application of the Aschheim-Zondek test. This test appears to have solved the problem of the biologic diagnosis of pregnancy. Its technic presents, however, a number of disadvantages owing to the fact that it is necessary to use, as a reactive animal, immature female mice. The use of female rabbits, as proposed by Friedmann, constitutes a modification of great practical value. The speaker used adult rabbits weighing from 1,200 to 1,800 Gm. The urine for the test is collected preferably in the morning and is injected into the margin of the ear, after previous centrifugation or filtration, in doses of from 5.7 to 10 cc. (a single injection) or in two doses of 5 cc. each. The test required, on the average, forty-eight hours. In fifty-five persons examined, Rossi secured the following results: In twelve cases in which pregnancy could be absolutely excluded, results were all negative; in five cases in which pregnancy was doubtful but was later confirmed, the results were all positive; in two cases of doubtful pregnancy, in which, however, pregnancy proved to be absent, the results were negative, and in thirty-six established cases of pregnancy all the results were positive within a period ranging from forty-eight to ninety-six hours. The speaker thus secured 100 per cent of correct results. He holds, therefore, that, with the use of female rabbits, the Aschheim-Zondek test need no longer be confined to purely scientific institutes but may be accepted in the field of practice, where it will be of great value.

Radiologic Record Cards

Dr. Mario Romagnoli, director of the radiologic institute of the Ospedali riuniti of Pistoia, recently examined radiologically 400 school children, who were subjected at the same time to a clinical, ophthalmologic and otorhinolaryngologic examination. This systematic examination of a large group revealed lesions in a number of apparently healthy children. Suitable treatment applied in time will prevent in many cases the development of grave disease. This fact is important also from the economic and social points of view, and Dr. Romagnoli suggests, therefore, that radiologic record cards be systematically made out for all the pupils of the primary classes in the various schools. This would make it possible to follow up every pupil throughout his school life and would enable observers to discover what influence, if any, study has on the evolution of specific pulmonary diseases. The increased expenditures associated with the radiologic examinations, which should be applied only at intervals of a certain number of years, can be kept within reasonable limits, since more families will be able to pay a fixed charge, while the welfare organizations will assume the charges of those unable to pay.

The Indications for Apicolysis

Prof. A. Omodei Zorini explained recently to the Federazione per la lotta contro la tuberculosi the clinical indications for simple apicolysis and for apicolysis with plugging. Apical plugging with paraffin, the speaker stated, presents some disadvantages—among others, the possibility that the foreign body introduced between the costal walls and the fibrous cavity will not be as elastic as a pneumothorax and will serve as a stimulus to the evolution of the morbid process, facilitating the diffusion of small acinose nodules through the inferior lobes. In the more recent statistics there was from 60 to 65 per cent of cases in which the disease did not undergo any modification as a result of the intervention but continued its fatal evolution. In a portion of the patients with chronic, isolated and stationary cavities of the apical region, a further propagation of the morbid process was observed with the mechanism mentioned. It would be desirable to apply a small extrapleural pneumothorax, but this would require strong positive pressure and would present a danger from gas embolism. The plan devised by Professor Morelli of confining the gas in a rubber balloon appears rational. The speaker holds that in some cases good results can be secured by resorting to total extrapleural detachment of the apical cavity and partial closure of the wound. Ten patients were operated on by this method. In four the results, after the lapse of from four to six months, were favorable and on the whole encouraging.

Prof. M. Ascoli, speaking about simple apicolysis, recalled that, according to Tuffier, it should serve different purposes from those for which it was first used. It was, in fact, after about twenty years that one began to study the method of filling the residual cavity with a plugging material. If simple apicolysis is performed by means of an ample resection, anteriorly, of the second rib, the pleuroparietal detachment can be carried out under control of the eye. It is thus possible to liberate entirely the pleural dome from the ligaments that support it and accomplish a complete and true apicolysis.

Prevention of Tuberculous Diseases

The public health service has recently supplied the provincial physicians with instructions on best methods for the prevention of tuberculosis among children. The preventive measures should begin with the prenatal period. The gravidae affected with tuberculosis should be sought out and should be aided at home in case they cannot leave home; otherwise they should be admitted to hospitals, taking precedence over any other patients. Also the nurslings and weaned children of tuberculous mothers and children living with tuberculous persons should be aided at home or by temporary internment in special institutions.

The investigations made by the antituberculosis dispensaries among school children will aid in ferreting out the children of tuberculous persons and the children living with tuberculous persons. Aid to such children should be given in heliotherapeutic centers and in seaside colonies. It will be well for such children to be placed in special schools by themselves, in which curative measures can be consistently applied. The instruction should be imparted by abbreviated and special pedagogic methods. A gratuitous school lunch should be furnished that will constitute at least 50 per cent of the total daily food requirements, corresponding to the age of the pupils. Fresh air therapy, heliotherapy and gymnastic exercises (in accordance with medical prescriptions) should be systematically applied.

JAPAN

(From Our Regular Correspondent)

Nov. 1, 1932.

The Health Insurance Contract

Health insurance in this country has been in force for five years. Directed by the Home Office, it is gradually making progress. The contract between the factory owner and the Japan Medical Association has sometimes brought about troubles. The terms of the contract are again to the fore. The factory keepers have not been brought under one authority. Those members who feel the lack of unity are going to organize into one great association, which will be a most powerful bargaining body. A committee has made public the regulations of the general association to be established in the near future. The Home Office has unofficially sanctioned the scheme. The terms of contract for the next fiscal year are to be concluded during the present year.

Microscopes Manufactured in Japan

For a long time all kinds of microscopes have been imported from foreign countries. To encourage home industry, the microscope has been manufactured successfully in a Japanese factory under the charge of a Mr. Kato. His success is highly welcomed in scientific circles. His lenses are reported to be so excellent that no foreign lenses will be required. Since the remarkable fall in the exchange rate last summer, imports of foreign articles have considerably decreased. Self support in these lines will be a blow to foreign dealers.

Society Meetings

The thirty-fifth general meeting of the Kyushu medical society was held at Nagasaki in September. More than 300 papers were read.

The second general meeting of the chief officials of public hospitals was held at Gifu, in central Japan, September 30. The main discussion concerned how to deal with the present financial difficulties in managing hospitals.

The Physicians' Conference of northeastern Japan was held at Mito, near Tokyo, October 22-24. About 600 were present, making it a great success. One of the resolutions was an appeal to the government for a relief measure for physicians who are economically embarrassed as a result of the depression. The revision of the regulations of the Japan Medical Association with regard to physicians' fees was not discussed.

The Census in 1931

The report on the population was published by the statistical bureau of the cabinet, October 29. The study includes the whole Japanese nation and its territories, such as Korea, Formosa, Saghalien and Kwangtung, and those also who are in foreign countries. The number of marriages was 496,574, a proportion of 7.60 per thousand of population. This is a decrease of 0.26. The highest rate of marriage in the past was 9.76 in 1920. Legal divorces numbered 50,609, a proportion of 0.77 per thousand of population, a decrease of 0.03. The number of divorces shows a tendency to decrease from year to year. Births numbered 2,102,784, the rate of birth being

32.17 per thousand of population, an increase of 17,683 compared with the previous year. Deaths numbered 1,240,891, an increase of 70,024 over 1930. The rate per thousand of population is 18.98. The increase of the population, that is, the difference between births and deaths, is 861,893. Compared with the previous year this is a decrease of 52,341. In addition to these numbers, which pertain to residents in Japan proper only, if those of residents in the territories are counted, the following apply: marriages, 50,249; divorces, 51,162; births, 251,500; deaths, 1,263,370.

BUCHAREST

(From Our Regular Correspondent)

Nov. 11, 1932.

Venereal Disease in Rural Rumania

In prewar times, the Rumanian villages were fairly free from the ravages of venereal diseases, but the situation has changed since the termination of the war. Venereal disease is now common in country places and prostitution is just as general in villages as it is in cities. But while in the cities there is a control and supervision of public morals, this is entirely lacking in country places. The purity of family life is decaying. Illegitimate children form a great percentage of the birth rate. Girls between 14 and 15 become mothers. Liquor shops and dance halls are hotbeds of secret prostitution. Lately, a specialist in venereal diseases was sent out by the ministry of health to ascertain the amount of venereal disease. In his report this delegate described fearful things. Many well developed girls of 13 or 14 suffer from gonorrhea and syphilis, and they consult a physician only when lesions distort their appearance. Divorces are frequent, and induced abortions on a large scale are performed by midwives and old women. The infant mortality rate is high. In consequence of gonorrhea, uterine diseases are common. In short, the village population is at present the prey of venereal diseases. The people are uneducated in prevention and cure of these diseases and the present medical service is insufficient. Dr. Aurel Mihailescu, who made a special study of methods for a successful campaign against this scourge, suggests to the government that supervisors be employed to examine the rural population and refer those needing hospitalization to well equipped hospitals for gratuitous treatment. Further, he suggests that ambulatories and polyclinics be established with well trained specialists, who would not only treat patients but also teach the rural population personal prophylaxis. Also teachers and clergymen would systematically lecture on venereal disease and how to check its ravages. He says that tons of arsphenamine injected into the veins of patients will not cause syphilis to disappear unless efficacious prophylactic measures are introduced by way of educating the rural population. The present system of leaving the treatment of rural people to the care of the district village doctor, who has from ten to fifteen villages under his care, some of them 15 or 20 miles from his residence, is wholly inadequate. They have absolutely no time to partake in a satisfactory campaign. Venereal dispensaries would have to be kept open for at least three years after the extermination of the scourge, in order to follow up the treatment for three successive years, a period necessary for the treatment of syphilis. The government, whose premier, M. Vajda, a physician, lately resigned, accepted Mihailescu's proposal and made arrangements for the organization of a campaign to check venereal diseases.

New Hospital in Bucharest for Invalids

The minister of public health has resolved to add to the present central polyclinic dispensary a hospital of eighty beds. The new hospital is to be located in the spacious buildings of the dispensary. Of the eighty beds, about thirty-five will be attached to the surgical section. Admission to the new beds will be entirely gratuitous. Those who can afford to pay will pay a minimal fee for hospital treatment. In case of vacancies also officials and clerks in the lower payment classes will be admitted. Two thirds of the beds, however, will be reserved exclusively for invalids. A wealthy farmer near Bucharest has offered free vegetables, all the year round, for the invalids. The new hospital wards will be opened early next year.

Extra Congress of the National Medical Association

In view of the urgency of the subjects to be discussed, the National Medical Association will hold a congress the week before Christmas. The program will include addresses by Professor Gheorghiu, president of the association, on "Principles of the Future Organization of the Council on Medical Ethics"; Dr. G. Banu, state secretary, ministry of public health, on "Relief for Physicians"; Professor Tomescu, "The Present Position of the Public Health Institutions"; Steganescu-Galati, "Medical Syndicates Within the Medical Association"; Marius Georgescu, lecturer at the university of Bucharest, "The Protection of Medical Practice and the Regulation of Gratuitous Treatment"; Albulescu, "The Extension of Panel Practice"; Alfandary, "Free Choice of Doctors at the Sickness Insurance Institutions"; Diverses, "The Problem of the Taxation of Physicians, and Measures to be Taken for the Reduction of the Physician's Telephone Bill" (the reduction of professional automobile taxes and the strict application of the law concerning medical positions). This law went into effect three years ago but nothing has been done as yet; not even the medical chamber raised a voice against the fact that in Bucharest there are physicians who hold three or more full time positions while others do not earn their daily bread. Lately a medical paper published the name of a Bucharest physician who is a district medical officer, railway doctor, school doctor and panel doctor. Out of these four positions he has a fixed salary of about 60,000 lei a year.

Awards Made by the Rumanian Academy

The Rumanian Academy of Sciences controls a fund, collected mainly from bequests, the interest of which, according to the wish of the testator, is awarded to the best literary works that have appeared during the year. The committee on awards has just finished reading the contributions for 1931, and out of the many awards the following were given for medical treatises: The Oroveanu prize of 70,000 lei has been awarded to Dr. Mina Minovici, professor of forensic medicine at the university of Budapest, for the second volume of his "Manual of Forensic Medicine." The Riegler 6,000 lei prize was awarded to Prof. Peter Tomescu for his "Clinical Experimental Studies," which will be shortly translated into German. The Adamachi prize was given to Dr. Valeriu Bologa for his work "The History of Scientific Medical Work in Rumania," read in part at the recent International Congress on Medical History. The Constantinide prize was divided between Aurel Voina, lecturer at the University of Bucharest, for his treatise "Prostitution and Venereal Disease in Rumania," and Drs. Staicovici and Westfried for their monograph dealing with public health affairs of the city of Bucharest in the postwar years.

Marriages

RALPH CORNING GOUDEY, Binghamton, N. Y., to Miss Amelia Marcella Walsh, September 26.

J. MCCHESNEY HOGSHEAD, Chattanooga, Tenn., to Miss Gladys Sarah Lee Coombs, October 19.

ALTON MILLER JOHNSON, Valhalla, N. Y., to Miss Jane Grey of Orlando, Fla., October 18.

HOUSTON SPENCER EVERETT, Baltimore, to Miss Excie Clay Robertson, October 1.

RICHARD O. PFAFF, Des Moines, to Miss Mary Clare Cownie, September 14.

MAX A. BAHR to Mrs. Ida A. Gregg, both of Indianapolis, recently.

Deaths

Alfred Henry ⊕ Indianapolis; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1907; associate professor of medicine, Indiana University School of Medicine; past president of the National Tuberculosis Association, Marion County Tuberculosis Association and the Mississippi Valley Conference on Tuberculosis; president of the board of managers, Sunnyside Sanatorium, Oaklandon; on the staffs of St. Vincent's Methodist Episcopal and Robert W. Long hospitals and the James Whitcomb Riley Hospital for Children; aged 58; died, December 12, of heart disease.

Edward Ambrose King ⊕ New York; University of Pennsylvania School of Medicine, Philadelphia, 1912; fellow of the American College of Surgeons; instructor in surgery, University and Bellevue Hospital Medical College; visiting surgeon to St. Vincent's and New York Foundling hospitals, assistant surgeon to the Misericordia Hospital; consulting surgeon to St. Joseph's Hospital, Yonkers; aged 44; died, December 9, of pneumonia.

Robert Gilcrest Schnee, Cleveland; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1897; member of the Ohio State Medical Association; formerly professor of bacteriology and pathology at his alma mater; aged 60; on the staffs of the Glenville Hospital, Grace Hospital and the Huron Hospital, where he died, November 27, of heart disease.

Edward Louis Heintz ⊕ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; associate professor of medicine, emeritus, at his alma mater; fellow of the American College of Physicians; secretary of the University Hospital; aged 58; died suddenly, December 7, of heart disease.

William MacLake, Veterans' Administration Hospital, Ind.; University of Michigan Medical School, Ann Arbor, 1898; member of the American Psychiatric Association; served during the World War; medical officer in charge of the U. S. Veterans' Administration Hospital; aged 57; died, November 12, of chronic myocarditis.

Clifford Lee Welbourne ⊕ Battle Creek, Mich.; Medical College of the State of South Carolina, Charleston, 1927; member of the South Carolina Medical Association; on the staff of the American Legion Hospital; aged 36; died, November 25, in the Leila Hospital, of carcinoma of the stomach and aortic insufficiency.

Albert Gallatin Weed, New York; University of the City of New York Medical Department, 1890; for many years on the staffs of the New York Polyclinic Hospital and the Manhattan Eye, Ear, Nose and Throat Hospital; aged 71; died, November 17, at his home in Stamford, Conn., of cerebral hemorrhage.

Walter Wilson Yates ⊕ Casper, Wyo.; Rush Medical College, Chicago, 1902; past president of the Natrona County Medical Society; served during the World War; on the staff of the Memorial Hospital of Natrona County; aged 64; died, November 10, of acute cardiac dilatation and agranulocytosis.

Sheldon Bristol Young ⊕ Cass City, Mich.; Detroit College of Medicine, 1903; served during the World War; formerly member and president of the board of education; aged 63; died, November 7, in the University Hospital, Ann Arbor, following an operation for tuberculosis of the left shoulder and chest wall.

Reinhard Ernest Wobus ⊕ St. Louis; Washington University School of Medicine, St. Louis, 1905; fellow of the American College of Surgeons; served during the World War; aged 53; died, November 3, in the Veterans' Administration Hospital, Jefferson Barracks, Mo., of nephritis.

Max H. Bochroch ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1880; professor of psychiatry, Temple University School of Medicine; on the staffs of the Philadelphia General, St. Joseph's, Frankford and the Jewish hospitals; aged 71; died, November 27, of heart disease.

J. J. Young, Clayton, N. C.; College of Physicians and Surgeons, Baltimore, 1897; past president of the Johnston County Medical Society; formerly member of the school board; aged 60; died, November 6, in the Rex Hospital, Raleigh, of acute dilatation of the heart and hypertension.

John M. Poer, West Point, Ga.; Atlanta College of Physicians and Surgeons, 1898; member of the Medical Association of Georgia and the Medical Association of the State of Alabama; past president of the board of education; aged 59; died, November 15, of typhus fever.

Clarence Elmer Truesdell, Detroit; Detroit College of Medicine and Surgery, 1917; member of the Michigan State Medical Society; on the staff of the Providence Hospital; aged 39; died suddenly, November 23, of streptococcus pneumonia and heart disease.

Barton L. Wright ⊕ Medical Inspector, Commander, U. S. Navy, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1895; entered the navy in 1899; aged 62; died, November 22, at his home in Atlantic City, N. J., of coronary thrombosis.

Charles Archibald Walton, Anderson, Ind.; Hahnemann Medical College and Hospital, Chicago, 1896; member of the Indiana State Medical Association; aged 62; died suddenly, November 10, of acute dilatation of the heart and cerebral hemorrhage.

William L. Pyle ⊕ Jersey City, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1887; on the staffs of the Fairmount, St. Francis' and Christ hospitals; aged 67; died, November 19, of coronary thrombosis and chronic emphysema.

Henry Percy Jaques, Lenox, Mass.; Harvard University Medical School, Boston, 1880; member of the Massachusetts Medical Society; aged 77; died, November 14, in Framingham Centre, of carcinoma of the stomach with extensive liver metastases.

Charles Noah Allen, Moosup, Conn.; University of Vermont College of Medicine, Burlington, 1881; member of the Connecticut State Medical Society; past president and secretary of the Windham County Medical Society; aged 75; died in November.

Benjamin Abner Arnold ⊕ Freeport, Ill.; Rush Medical College, Chicago, 1895; past president of the Stephenson County Medical Society; on the staffs of St. Francis and the Evangelical Deaconess hospitals; aged 70; died, November 24, of diabetes mellitus.

Ellen Marie Johnson, Los Angeles; Dearborn Medical College, Chicago, 1905; College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois, 1909; aged 72; died, October 10, of shock, following a fractured pelvis.

Alfred A. Pray ⊕ New Orleans; Tulane University of Louisiana Medical Department, New Orleans, 1897; served during the World War; aged 67; died, November 7, at the Touro Infirmary, of bronchopneumonia and coronary thrombosis.

Carl Victor Vischer ⊕ Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1919; fellow of the American College of Physicians; on the staff of the Hahnemann Hospital; aged 36; died, November 15, of septicemia.

Robert Charles Leddy, New York; Medical College of Virginia, Richmond, 1914; served during the World War; aged 43; on the staff of the Knickerbocker Hospital, where he died, November 13, of cerebral hemorrhage and nephritis.

Edgar Theodore Weed ⊕ Scarsdale, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1881; on the staff of St. Luke's Hospital, New York; aged 74; died, November 30, of heart disease.

Vincenzo Sellaro ⊕ New York; Regia Università di Napoli. Facoltà di Medicina e Chirurgia, Italy, 1895; for many years on the staff of the Italian Hospital; aged 64; died, November 28, in the Columbus Hospital, of uremia and heart disease.

Howard Arthur Lanpher, Des Moines, Iowa; Tufts College Medical School, Boston, 1907; member of the Massachusetts Medical Society; epidemiologist of the state department of health; aged 49; died, November 7, of pneumonia.

Porter E. Williams ⊕ Kansas City, Mo.; Beaumont Hospital Medical College, St. Louis, 1888; medical superintendent of the Kansas City General Hospital; aged 66; died, November 18, of arteriosclerosis and coronary thrombosis.

Henry Nelson Miner, Sacramento, Calif.; Chicago Medical College, 1886; member of the California Medical Association; past president of the Placer County Medical Society; aged 74; died, November 26, of chronic myocarditis.

Edward Allen Sickels ⊕ Dixon, Ill.; Hahnemann Medical College and Hospital, Chicago, 1897; fellow of the American College of Surgeons; on the staff of the Dixon Public Hospital; aged 66; died, November 13, of carcinoma.

Robert Fletcher Taylor, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1899; member of the Medical Society of the State of Pennsylvania; aged 69; died, November 20, of heart disease.

Everett Chapman Ward, Brandon, Iowa; State University of Iowa College of Medicine, Iowa City, 1907; member of the

Iowa State Medical Society; aged 56; died suddenly, November 18, of heart disease and uremia.

Alanson G. Pearce ⊕ Orange, Texas; Medical Department of the Tulane University of Louisiana, New Orleans, 1890; on the staff of the Frances Ann Lutcher Hospital; aged 65; died, July 10, of angina pectoris.

Henry A. Vennema, Menominee, Mich.; Chicago Medical College, 1888; member of the Michigan State Medical Society; formerly on the staff of St. Joseph's Hospital; aged 67; died, October 20, of angina pectoris.

David E. Quinn ⊕ Dennison, Ohio; Columbian University Medical Department, Washington, D. C., 1895; formerly member of the school board and board of health; aged 63; died, October 19, of heart disease.

Herbert A. Adamson ⊕ Richmond, Utah; Queen's University Faculty of Medicine, Kingston, Ont., 1892; president-elect of the Utah State Medical Association; aged 62; died, November 17, of influenza.

Robert Lee Peyton ⊕ Johnson City, Tenn.; University of Tennessee College of Medicine, Memphis, 1916; on the staff of the Veterans' Administration Home; aged 55; died, October 19, of cerebral hemorrhage.

Joseph Pierre St. Germain ⊕ New Bedford, Mass.; Dartmouth Medical School, Hanover, N. H., 1885; for many years medical inspector of schools; aged 69; died, November 17, of coronary thrombosis.

William Porter ⊕ Hartford, Conn.; Chicago Medical College, 1882; for many years on the staffs of the Hartford Hospital and the Hartford Retreat; aged 77; died, November 7, of angina pectoris.

Charles Lane Hudson, Salinas, Calif.; Eclectic Medical Institute, Cincinnati, 1906; member of the State Medical Association of Texas; aged 51; died, October 2, in Watsonville, of angina pectoris.

Archie Elton Williams, Long Beach, Calif.; University of Minnesota Medical School, Minneapolis, 1900; aged 60; died, November 24, of epithelioma of the antrum and chronic interstitial nephritis.

George McKee, Boston; College of Physicians and Surgeons, Boston, 1909; member of the Massachusetts Medical Society; aged 71; died, November 30, of chronic nephritis and myocarditis.

Lewis Clarke, Calgary, Alta., Canada; Medical Faculty of Trinity University, Toronto, Ont., 1904; aged 59; died, October 9, in the Holy Cross Hospital, of cerebral arteriosclerosis.

Charles Edmund Fisher, Paso Robles, Calif.; Detroit Homeopathic Medical College, 1872; Pulte Medical College, Homeopathic, 1875; aged 79; died, August 25, of angina pectoris.

Horace Newton Allen, Toledo, Ohio; Miami Medical College, Cincinnati, 1883; formerly a medical missionary; aged 74; died, December 11, of diabetes mellitus and coronary sclerosis.

Sheridan G. Cobb, St. Paul; Hahnemann Medical College and Hospital, Chicago, 1884; member of the Minnesota State Medical Association; aged 70; died, November 18, of pernicious anemia.

George Welty Ridenour ⊕ Detroit; Detroit College of Medicine and Surgery, 1913; on the staff of the Lincoln Hospital; aged 43; died suddenly, November 15, of cerebral hemorrhage.

James D. Weeks, Ackerman, Miss.; University of Tennessee Medical Department, Nashville, 1882; formerly county health officer; aged 73; died, November 24, of heart disease.

Wiley H. Quillian, Lula, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1902; member of the Medical Association of Georgia; aged 55; died, September 9.

George H. Fulford, Sioux Falls, S. D.; Boston University School of Medicine, 1880; member of the South Dakota State Medical Association; aged 79; died, November 27.

John A. Pollock, Kinston, N. C.; Medical Department of the University of the City of New York, 1877; Confederate veteran; aged 88; died, November 11, of gastritis.

Stuart R. Maul, Riverside, N. J.; University of Louisville (Ky.) School of Medicine, 1910; aged 47; was found dead, November 7, of gas poisoning, self-administered.

William Clay Jones, Chicago; Eclectic Medical Institute, Cincinnati, 1909; aged 48; died, October 30, in the Woodlawn Hospital, of cyanide poisoning, self-administered.

Berthold Michael Joseph Conlin, Los Angeles; Albany (N. Y.) Medical College, 1875; aged 80; died, October 18, of hypertrophy of the prostate and heart disease.

Frederick Alden ⊕ Des Moines, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1906; aged 53; died, November 18, of heart disease.

Henry Nolte, Milwaukee; Columbia University College of Physicians and Surgeons, New York, 1898; aged 59; died, November 11, of carcinoma of the pancreas.

Arthur M. Smith, Farmington, N. M.; Kansas City (Mo.) Medical College, 1897; for many years on the staff of the San Juan Hospital; aged 68; died, September 5.

Albert Harvey Kreager, Zanesville, Ohio; Ohio Medical University, Columbus, 1897; aged 61; died, November 17, in the Good Samaritan Hospital, of heart disease.

Hubert J. Straten ⊕ Chicago; Hering Medical College, Chicago, 1894; Dunham Medical College, Chicago, 1895; aged 64; died, December 8, of heart disease.

Moses Cortez Leeth, Indianapolis; University of Tennessee Medical Department, Nashville, 1895; aged 65; died, November 24, of cerebral hemorrhage.

Romania B. Penrose, Salt Lake City, Utah; Woman's Medical College of Pennsylvania, Philadelphia, 1877; aged 93; died, November 4, of chronic nephritis.

David J. Carson, Los Angeles; Jefferson Medical College of Philadelphia, 1894; aged 66; died, August 24, of arteriosclerosis and hypertrophy of the heart.

Oswald L. Appelt, Chicago; Medizinische Fakultät der Universität Leipzig, Saxony, Germany, 1914; aged 48; died suddenly, December 12, of heart disease.

Amos A. Crooks ⊕ Peoria, Ill.; Marion-Sims College of Medicine, St. Louis, 1898; public school physician; aged 55; died, November 25, of heart disease.

Ernst A. W. Wilkens ⊕ New York; University of the City of New York Medical Department, 1893; aged 67; died, October 17, of chronic myocarditis.

Felix J. Przybylowski, Detroit; Michigan College of Medicine and Surgery, Detroit, 1904; aged 57; was found dead, November 10, of gas poisoning.

Jera Morton Mansfield, Los Angeles; Hahnemann Hospital College of San Francisco, 1896; aged 65; died, October 23, of chronic interstitial nephritis.

Frank G. Zilliken, Chester, Ill.; Homeopathic Medical College of Missouri, St. Louis, 1896; aged 58; was found dead, November 4, of heart disease.

August G. Wilhelmj, Maeystown, Ill.; Marion-Sims College of Medicine, St. Louis, 1895; aged 61; died, October 28, of cerebral hemorrhage.

James Alexander Forrest, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1922; aged 35; died suddenly, August 21.

William Edward Wegge, Milwaukee; Rush Medical College, Chicago, 1918; aged 40; died, November 3, of an overdose of a sleeping potion.

John P. Symons ⊕ Rockford, Ohio; Western Reserve University Medical Department, 1889; aged 73; died, November 17, of heart disease.

Ethelbert S. Ray, Hamden, Ohio; Jefferson Medical College of Philadelphia, 1890; aged 67; died, November 17, of cerebral hemorrhage.

Charles Walter Brown, Phoeniz, Ariz.; Emory University School of Medicine, Atlanta, 1917; aged 44; died, June 3, of myocarditis.

Lewis F. Bleazby, Los Angeles; Detroit College of Medicine, 1899; aged 59; died, October 12, of hydrocyanic acid poisoning.

Beauregard Williams, Pelham, Ga.; Southern Medical College, Atlanta, 1891; aged 71; died suddenly, October 26, of heart disease.

Roy James Chappell ⊕ Dudley, Ga.; University of Georgia Medical Department, Augusta, 1890; aged 66; died, November 22.

Charles Leonard Dodson, Moberly, Mo.; St. Louis College of Physicians and Surgeons, 1915; aged 54; died August 27.

James Harold McCune, Kirksville, Iowa; Rush Medical College, Chicago, 1874; aged 86; died, November 30.

J. Leonard Aymett, Pulaski, Tenn. (licensed, Tennessee, 1910); aged 47; died, November 2, of tuberculosis.

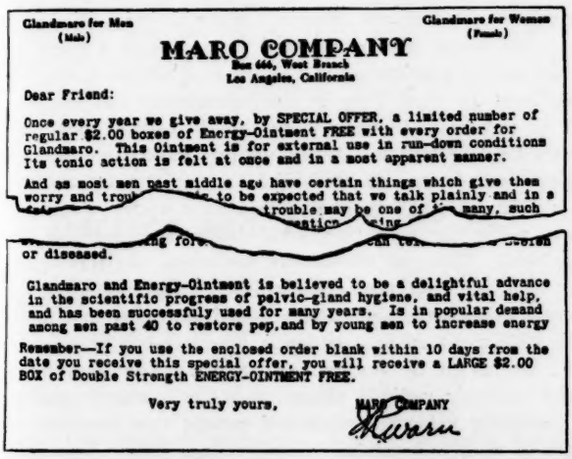
Bureau of Investigation

TWO FAKE APHRODISIACS

The Maro Company and the Ponce de Leon Laboratories Declared Frauds

The Maro Company:—For some time there has been operating from Los Angeles a quackish concern known as the Maro Company, which has sold on the mail-order plan an alleged aphrodisiac called "Glandmaro" and, as an accessory, a preparation called "Energy Ointment."

It appears from the memorandum submitted by Judge Horace J. Donnelly, Solicitor for the Post Office Department, to Postmaster-General Walter F. Brown, recommending the issuance of a fraud order, that the Maro Company was one of a series of medical mail-order enterprises originated by one I. R. Warn. This name looms large in the quackery files of the Bureau of Investigation. In 1898 one I. R. Warn was reported as having been arrested by the federal officials on a fraud scheme, pleaded guilty, and was sentenced to a month in jail. There is also record of an I. R. Warn who was indicted in 1908 in Chicago on a fraud scheme and sentenced in 1910 to Leavenworth Penitentiary. Later I. R. Warn seems to have been connected with the Warn Remedy Company, which was alleged to be owned



Glandmaro for Men (Male)

Glandmaro for Women (Female)

MARO COMPANY
Box 444, West Branch
Los Angeles, California

Dear Friend:

Once every year we give away, by SPECIAL OFFER, a limited number of regular $2.00 boxes of Energy-Ointment FREE with every order for Glandmaro. This Ointment is for external use in run-down conditions Its tonic action is felt at once and in a most apparent manner.

And as most men past middle age have certain things which give them worry and trou... to be expected that we talk plainly and in a ... trouble may be one of ... many, such ...

... or diseased.

Glandmaro and Energy-Ointment is believed to be a delightful advance in the scientific progress of pelvic-gland hygiene, and vital help, and has been successfuly used for many years. Is in popular demand among men past 40 to restore pep, and by young men to increase energy

Remember—If you use the enclosed order blank within 10 days from the date you receive this special offer, you will receive a LARGE $2.00 BOX of Double Strength ENERGY-OINTMENT FREE.

Very truly yours, MARO COMPANY

Photographic facsimile (greatly reduced) of the top and bottom of a circular letter sent out by the Maro Company in 1930 when it was run by I. R. Warn.

by his wife, Katherine, and his son, Stanley J. The son seems to have run afoul of the federal authorities, for there is a record to the effect that in April, 1918, Stanley J. Warn was arrested at Los Angeles, indicted, and finally sentenced. The Warn Remedy Company's epilepsy treatment—luminal and charcoal—was dealt with in this department of THE JOURNAL, March 11, 1922, and the matter appears in the pamphlet "Epilepsy Cures."

The Maro Company, at the time the government debarred it from the mails, was not a Warn concern. In April, 1931, Warn is said to have sold the business to Max L. Harris for $750. Harris was not a physician, chemist or pharmacist, and employed neither chemists, physicians nor pharmacists, but that did not prevent him from selling his rectal suppositories, Glandmaro, and his Energy Ointment. Both of these preparations were sold under the claim that they would restore lost sexual vigor in men, cure prostate gland, kidney and bladder troubles, and prevent "vital losses," and were "absolutely harmless."

When the federal authorities analyzed these products, they found that Glandmaro suppositories contained red pepper, nux vomica, beef and corn starch. The Energy Ointment was an orange-colored, perfumed, waxy grease with which was mixed red pepper! The suppositories were to be inserted into the rectum, while the ointment was to be applied liberally to the male generative organs, including the scrotum.

The government showed by expert medical testimony that the preparations were quite worthless for the purposes for which they were sold. Evidence was also introduced to show that Harris, in addition to selling the suppositories and the ointment, also sold a "Vacuum Exhaust Adjustor," one of the mechanical masturbators that are so popular with quacks. On July 11, 1932, the Postmaster issued a fraud order against the Maro Company at Santa Ana and Los Angeles, Calif.

Ponce de Leon Laboratories:—One R. James Gale started a fraudulent mail-order business under the name Ponce de Leon Laboratories at Miami, Fla., in April, 1931, according to the report of the postal authorities, who have just debarred the scheme from the mails. In January, 1932, Gale sold a half-interest in this business to Verne R. Campbell and his wife, E. Dudley Campbell, and the business from then on was managed by Mrs. Campbell. The scheme consisted in selling a salve known as "Ponce de Leon Cream" for the alleged sexual rejuvenation of men.

The files of the Bureau of Investigation show that Gale claimed in his older advertising that he was a chemist, and he described how he came to devise the Ponce de Leon Cream. According to Gale's story, he noticed, while visiting Central America that the native men, even those up to eighty years of age, were married to extremely young women, were "enjoying perfect connubial bliss" and "were propagating offspring with amazing regularity." Gale stated that while "most Americans look upon this as an 'Old Spanish Custom,'" he, being a chemist, decided that there must be some reason for "this fortunate condition, which has baffled medical science in our country." He therefore investigated and claimed to have found that the women in the country he was visiting made regular trips into the "tropical mountains" in search of "certain rare roots, leaves and berries," from which they concocted an ointment "which their husbands apply externally to the vicinity of the prostate gland."

In later advertising—probably because he was getting cautious—Gale ceased to claim that he was a chemist, but stated that he was "associated with chemists." In any case, Gale claimed that he secured "the basic formula of this primitive product" and "after exhaustive experiments" he perfected the preparation that he had to sell. This was the story as told by the Ponce de Leon Laboratories in the sale of its Ponce de Leon Cream. The postal authorities in their investigation found that this marvelous sexual rejuvenator was "nothing more than a red pepper salve." It seems that the Campbell people were not given the formula when they purchased their half-interest in the business, but had to pay one Edward W. Gorham 49 cents for compounding the ingredients of each four-ounce jar, which the Campbells sold for $5.

The memorandum of Judge Horace J. Donnelly recommending the issuance of a fraud order stated that medical expert testimony showed that while application of a red pepper salve to the scrotum would produce local irritation and possibly have some psychic effect, it would not, of course, sexually rejuvenate men of fifty, sixty or eighty years of age. The Solicitor also brought out the fact that the Post Office Inspector who investigated the case was sold some of the preparation on the implied claim that it would sexually rejuvenate a man seventy-two years old who had lost his sexual vigor due to venereal disease and sexual excesses! The memorandum closes thus:

"The name 'Ponce de Leon' used in this scheme is designed to lead persons suffering from debility to believe that a new and wonderful sexual rejuvenant has been discovered. Some letters received by the promoters from persons reordering the salve indicate that purchasers believe that they may be rejuvenated by its use.

"Evidence before me shows, and I so find, that this is a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises.

"I therefore recommend that a fraud order be issued against the Ponce de Leon Laboratories and its officers and agents as such at Miami, Florida."

The order was issued, November 29, 1932.

Correspondence

REPORT OF THE COMMITTEE ON THE COSTS OF MEDICAL CARE

To the Editor:—I want to protest against putting the observations of the Wilbur Committee in the editorial pages. Put them back in the Tonics and Sedatives column, where they belong.

There seems to be some surprise at the findings of the committee. I have noticed that when several genial gentlemen of generous proportions, piloted by red noses, start out to investigate the liquor situation they generally agree that about 4 per cent beer freely distributed is indispensable for the preservation of civilization. The harmonious conclusions seem almost angelic.

Really, was there any one who recognized that committee five years ago who couldn't anticipate the report? There wasn't a regular doctor or a practical hospital man in the whole outfit. I mean that there were comparatively few who had extensive experience in dealing with folks first hand, who had a first hand knowledge of why costs are high.

Here is how the thing looks to a country doctor who has inspected some hundreds of thousands of the genus Populi, examining not only their carbureter but also the gas tanks.

The whole problem is the product of irresponsible people assuming responsibility, just like politics. A few persons bought us a nice war. We did not really need it but all nice nations had one, etc. A lovely time was had by all. It was only necessary to send home to father to pay the expenses. Father got a pain under the belt and that stopped the easy flow of currency. History says that when a war begins to burn out the bearings things don't run so good. History repeats.

Some years ago some high powered morons who couldn't find a place to hook their spurs in Washington figured it cost $3.17 to raise a bushel of wheat. Farmers got to feeling sorry for themselves and allowed themselves to be sold tractors, combines and gold bricks. When things didn't go so well, the farmer collectively sat down on his haunches and hollered. He pitied himself instead of searching out those who sold him the things mentioned; in other words, standardized farming!

Now the technic used on the medical practitioners was worked in the same way. The experts figured that it cost so much to educate a young doctor; that is, it cost father that. Note that distinction. It costs $3.17 to raise a bushel of wheat, remember. Having cost so much to educate him, he is entitled to a certain standard of living. This couldn't be obtained in rural communities, nor could intellectual advantages commensurate with what father bought be obtained there. This young man weeps, is terribly abused, moves to the city. After moving to the city he discovers that what father bought him is just a bit shy in parts, that there are certain hiatuses in his mental equipment. Therefore it is necessary to specialize. Now several of him migrated at the same time and it became necessary to charge more and more for less and less.

The communities into which father's expensive finished products moved suffered other calamities. Architects and engineers discovered that 5 per cent on a million is more than on a hundred thousand and the costs of hospitals went up. They sold these palaces to the same kind of unemployed who bought us our war. Hospitals were standardized up to whatever anybody could think of. If you didn't do this you just did not belong. Don't ask what all this was to accomplish. To be an efficient standardizer one must have a vivid imagination, no knowledge of the subject, and a lot of, say, self confidence.

Just like our war, it was discovered later, it had (or has) to be paid for. So also the hospital. You can haul milk and eggs to town in a Pierce Arrow but it isn't as convenient as a Ford truck. You can take care of the sick in the modern hospitals but it is inconvenient.

Of course the equipment as well as the hospital had to be standardized. The laboratory had to have a skull (euphemistically called a head), Wassermann, B. M. R., electrocardiograph, and all that. Everybody had to do it just the same way. Father's product, having seen only cases, was quite unprepared to meet patients and the smoke screen had to be provided. That the routine Wassermann test gives the clinical syphilologist a pain, that the B. M. R. is of use only to those who haven't studied goiters clinically and can tell by looking at the patient whether the readings are correct or not, that the thing about the heart of importance is what it will do, hasn't got to the basal ganglions of the standardizers yet.

Now, the problem is just this: This whole trouble between doctor and patient was boosted on the public and the profession by irresponsible meddlers. It concerns centers where the needless cost was instituted and practiced. Your old general practitioner is all right; his patients are all right. He may not be making a decent living, but put this down: he is decent and he is living.

Here is the remedy. Quit teaching the young men that they are highly educated just because they know a lot of things that are not true, at least not yet. Let them know that being a general practitioner isn't so bad if you like your job of limiting suffering and maybe once in a while saving a life. Drawing a full house, making a grand slam, playing a game away below par isn't unknown in the lives of simple doctors who have lived all their lives in the hinterland. Let committees get the idea that "By their work you shall know them" might be applied to hospitals. When we buy milk cows we do not inspect their faces; we study the amount and fat content of their milk. A small hospital with a good doctor will do good work, a big one with no clinical judgment may do a lot of poor work. You can standardize equipment, the formalities of education, but you can't standardize clinical judgment. Just allow a little institutional and personal autonomy and the high cost will be placed in a situation where it can be solved. It must be solved by doctor and patient. The high powered sociologist only muddles things up. The reason is that there is something between doctor and patient that you just can't chart or make a graph of. Every college should have at least one doctor on the faculty to teach the student that there is something ultramicroscopic in disease or at least in complaints.

ARTHUR E. HERTZLER, M.D., Halstead, Kan.

ARSENIC POISONING FROM SPRAYED ASPARAGUS

To the Editor:—A number of women connected with Northwestern University had dinner at a fashionable golf club recently. After returning to their separate homes they were taken violently ill. The physicians attending the separate cases stated that the symptoms of the malady suggested arsenical poisoning. The patients subsequently recovered.

I was asked to test the asparagus used at the dinner for arsenic. Suspecting botulinus or some similar malady, I reluctantly undertook to make the tests required.

The two bunches of asparagus sent to me were examined with a lens and I could not find a white deposit that might be an arsenic salt. However, after running tests I discovered that sample A contained a small amount of arsenic and sample B quite considerable arsenic, very much more than would be tolerated by the pure food laws.

I then tested my chemicals thoroughly and found them giving a negative test for arsenic. I also analyzed a specimen of asparagus purchased on the open market and this also gave a negative test.

My conclusion is that this asparagus was contaminated with arsenic and that different specimens showed widely different amounts of contaminating arsenic. This could be the case if an arsenical spray had been used on the growing plants.

W. V. EVANS,
Department of Chemistry,
Northwestern University,
Evanston, Ill.

BOVINE CARTILAGE FOR THE CORRECTION OF NASAL DEFORMITIES

To the Editor:—At a meeting of the American College of Surgeons in New York, in 1924, I happened to speak to a nose, throat and ear surgeon from the southwestern part of the United States. He told me that he was using beef cartilage in cases of nasal deformity and, up to that time, had had no trouble with it, but, on the contrary, had had good results in every case. Some three years ago I found that Dr. Edmund B. Spaeth of the Graduate School, University of Pennsylvania, was using beef cartilage in the reconstruction of orbits and he also had good results. I then decided to try this cartilage in nasal deformity cases and found that it was satisfactory. I suggested the use of it to Dr. F. O. Lewis, Dr. H. H. Lott, and Dr. Austin Smith of Jefferson Hospital and so far, I believe, the results have been satisfactory. I do not recall the name of the physician in the Southwest.

PHILIP S. STOUT, M.D.,
269 South Nineteenth Street,
Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BLEEDING DURING PREGNANCY

To the Editor:—One of my patients, a woman, aged 25, is between the fourth and fifth months of pregnancy. Her first pregnancy was two years ago and ended in normal delivery. During the summer of 1931 she had an abortion at about the fourth month, not induced. The rest of her past history and family history is negative. There is no evidence of syphilis, although no Wassermann test has been taken. A month ago she came to me because of vaginal bleeding. This bleeding is not profuse nor is it constant. It usually appears sometime during every day, although it has been absent for a day or two on two or three occasions. The blood is usually bright red and not clotted. She has to wear a napkin at all times. There is no pain, nor is the flow related to her activity. There is not even a recreation that she can recognize as definitely associated with the bleeding. On very careful questioning on one or two occasions she could predict the appearance of the blood by a slight "pressure" in the pelvis. This bleeding has caused quite a worry and it is hard to get a clear-cut story from her. On physical examination there is nothing abnormal. There is no pain or tenderness to pressure. The uterus is enlarged and in the midline. The pelvic examination shows nothing. There are no erosions on the cervix. I was unable to see any blood coming from the external os of the cervix. At first, I thought of a threatened abortion. I put the patient to bed and gave sedatives, but the bleeding continued. Since, I have tried ovarian therapy, but with no better results. It makes no difference whether she is up and about or in bed; the bleeding continues. I am now thinking of a placenta praevia. If that is the diagnosis, is it not rather early for bleeding to appear? I am on an island, about forty miles from the nearest hospital and not equipped to handle such accidents of pregnancy, and I am not anxious to have such a case here. Would you please advise me as to treatment and care of such a case? Would I be justified in sending her to a good obstetrician for examination? Are therapeutic abortions done in cases in which placenta praevia is recognized early? Please omit name.

M.D., Wisconsin.

ANSWER.—Since the information given in this case is not sufficient, it is difficult to make a correct diagnosis. It is important to know whether the size of the uterus corresponds with the duration of pregnancy or whether it is larger or smaller than it should be. It is also useful to know whether fetal heart tones have ever been heard and are still audible and also whether any vesicles suggestive of a hydatidiform mole have been looked for in the bloody vaginal discharge. A roentgenogram may give some useful information, especially if a fetus is shown.

Since the bimanual and specular examination of the pelvic organs revealed no abnormalities, one may rule out cancer of the cervix and cervical polyps. If the uterus is larger than it should be for the corresponding period of gestation and especially if the consistency of the uterus is not soft but is doughy, one must think of a hydatidiform mole. Careful macroscopic and microscopic examination of the blood that escapes may show chorionic vesicles in some cases. The diagnosis of hydatidiform mole will be strengthened if no heart tones have ever been heard and if a roentgenogram fails to show any fetal parts. An Aschheim-Zondek or Friedman test may assist in the diagnosis.

If the uterus is smaller and harder than it should be for the duration of pregnancy and especially if it is smaller and firmer now than it was a few weeks ago, it is safe to venture a diagnosis of missed abortion; that is, death of an ovum with retention instead of expulsion of it.

An ectopic pregnancy may be ruled out because two distinct masses would be felt: one, the larger fetal sac; the other, the smaller uterus pushed over to one side.

If the uterus is of normal size and consistency and the baby is alive, the constant bleeding most probably is indicative of a placenta praevia or a low lying placenta.

Regardless of the cause, any pregnant woman who bleeds persistently should be in a hospital or close to one. In the particular case, the patient should be examined by a competent obstetrician, preferably in a hospital under aseptic conditions. He will most likely be able to make the correct diagnosis. In most cases in which a woman begins to bleed in the third or fourth month of pregnancy as in the case cited, and the bleeding persists regardless of bodily activity, it is useless and sometimes dangerous to permit the gestation to continue. Only when a woman is willing to remain in or near a hospital is it safe to temporize and only when the uterus is growing in a normal way and the fetus is alive. In the present case, since the facilities are most unfavorable, the patient should be sent to a hospital where a competent obstetrician can properly manage the case.

CHRONIC INTERSTITIAL NEPHRITIS

To the Editor:—What means can be used to eliminate or counteract the retained products, nitrogen retention, and so on, in a case of chronic interstitial nephritis without edema? The usual conditions found, such as occasional dizziness, headache, nycturia and polyuria, are present in rather a mild degree at this time. Fatigue is marked. Would hydrotherapy in the form of a cabinet sweat bath once a week be considered good therapy and what other means of elimination would you suggest? Has any new line of treatment been worked out? Please omit name.

M.D., Washington.

ANSWER.—The prevailing idea concerning the retention of metabolites in nephritis is that the condition is due not so much to the inability of the kidneys to excrete them as to the extrarenal or tissue factor, which holds these substances in much the same manner as tissues hold water in edema, and the increase found on chemical examination of the blood represents equilibrium established between tissue and blood concentration. This means that treatment should be directed more to the tissues than to strictly renal stimulation.

Infection from all sources must be eliminated, as the action of toxins on cells tends to favor increased retention. With no evidence of decompensation, fluids should be moderately increased up to three quarts daily. Naturally bowel elimination should be free, and small doses of saline cathartics, such as sodium phosphate well diluted, are permissible.

Fatigue is frequently due to an inadequate protein diet. All present evidence indicates that no harm is done by the use of meat, and patients must be kept in nitrogen equilibrium. One gram of protein per kilogram of weight is usually adequate, part of which may be supplied by dairy products and fowl; but lamb or other red meat may safely be given three times a week.

The cabinet sweat may be tried if fluids are given freely and if it does not further aggravate the weakness. Fundamentally it will not correct the condition. There is no satisfactory new line of treatment, though much emphasis is now placed on a high protective (vitamin) diet in which the citrus and other fruits, all vegetables, cod liver oil and yeast are the sources of the vitamins. This seems to help in preventing the anemia of nephritis, in increasing resistance to infection, and in some further poorly defined constitutional manner. However, until further advance is made in the understanding and control of nephritis, little can be expected in the treatment of its manifestations.

SEXUAL LIBIDO AFTER MENOPAUSE

To the Editor:—I have under my care a woman, aged 35, married the second time, having two children, one by each marriage. About five years ago the patient suffered from some chest condition (bronchopneumonia?), following which she would get every winter a persistent cough. Four years ago she was operated on for persisting metrorrhagia; evidently a hysterectomy was performed. Following the operation she lost her menstruation and began to gain weight gradually until she reached her present weight of more than 200 pounds (more than 90 Kg.), having gained since the operation about 65 or 70 pounds (from 30 to 32 Kg.). The blood pressure is 150 systolic, 90 diastolic, and the pulse is 84. The objective examination otherwise is essentially negative. Since the operation the patient has noticed a marked increase of her libido, and the further she advances in age the worse the condition seems to get. Her husband, aged 55, although not impotent, cannot give her due satisfaction. She has lost sleep, has become extremely nervous, and is afraid of "losing her mind." I would appreciate your opinion about the diagnosis of the case and any suggestion for the treatment of the condition. Please omit name and city.

M.D., Pennsylvania.

ANSWER.—This patient belongs to a small group of women in whom sexual libido is definitely increased during and after the menopause. In most women the change of life does not seem to influence their sex desires and gratification. In some there is a diminution in these reactions, whereas in others there is an intensification of the libido. In rare instances, women who have been sexually frigid before the menopause actually become passionate in their desires. This phenomenon is brought about by changes in the glands of internal secretion; probably the pituitary gland and the ovaries are the ones responsible for this change. There is also most likely a psychic factor, because the patient may fear that with the change of life all her physical attractiveness and her entire sex life are to vanish. Treatment should consist of the avoidance of all sex stimulants, such as suggestive literature, motion pictures and theatrical performances. The patient should sleep in a room by herself as frequently as is necessary. She should exercise as much as possible in order to use up physical energy, and she should keep her mind well occupied. In addition to this advice it will most likely be necessary to prescribe mild sedatives, such as the bromides, for a while.

LACK OF SALIVARY SECRETION

To the Editor:—A woman, aged 60, is almost devoid of saliva, and there is a lack of tears and of nasal secretion. The Wassermann reaction is negative; hemoglobin is 70 per cent; red blood cells number 4,000,000; white blood cells, 10,500. She is a small eater. The left apex is unhealthy; a few remaining lower teeth are apparently healthy, although worn down. The urine and the blood sugar are normal. The tongue is pinker than normal. The rugae are normal. Fruity acids and sweets irritate. The patient can taste bland vegetables best. I have tried salivating with strychnine, potassium iodide and pilocarpine, but to no avail. Could you advise as to some form of treatment? Please omit name.

M.D., Canada.

ANSWER.—Optimal oral hygiene should be enforced and a complete denture provided, since the mechanical excitation of a dental plate at the openings of the salivary glands often exerts a favorable influence. Chewing gum may be tried as a sialogogue. Provided there is no stomatitis, an attempt might be made at reflex stimulation by irritants such as tincture of capsicum, spirit of camphor or the two combined, from one-half to one teaspoonful to be used in a wineglass of hot water as a mouth wash every two hours. In the presence of an irritable condition of the mouth it may be of help to dip the tongue for five minutes in a wide-mouthed container filled with oil of sweet almond immediately before meals and to eat without previously wiping the oil off the tongue. A glycerin mouth wash may be useful for temporary relief.

CAROID

To the Editor:—Please tell me the chemical nature of "caroid." I have not been able to obtain any such information from the sources at my disposal. Please omit name.

M.D., New Jersey.

ANSWER.—Caroid is a preparation of papain (obtained from papaya). The Council on Pharmacy and Chemistry had Caroid under consideration for a considerable time and in the end rejected the product on account of its variability. Examination showed that the claims for its digestive efficiency were exaggerated.

At the present time no digestive ferment preparation proposed for oral administration stands accepted for New and Nonofficial Remedies for the reason that the Council has become convinced that there is no adequate evidence for the usefulness of the internal administration of such digestive ferment preparations.

According to the advertising, Caroid and Bile Salts contain Caroid, sodium glycocholate and sodium taurocholate, cascara sagrada, nux vomica, phenolphthalein and capsicum. It is therefore essentially a laxative mixture of needlessly complex composition. The Council has not reported on Caroid and Bile Salts and has made no examination either of the product that is marketed or the claims that are advanced for the mixture.

SIDEROSIS BULBI

To the Editor:—What, if any, is the treatment for siderosis bulbi following removal of the foreign body? Would subconjunctival injections or diathermy aid in clearing up the lenticular deposits? Is it best to keep the heavy, nonreacting iris on the move with mydriatics and miotics? The authorities do not agree on the prognosis. The ones consulted are May, Fuchs, de Schweinitz, Weeks, Fox and Verhoeff (*Am. J. Ophth.*, August, 1932). Please omit name.

M.D., Massachusetts.

ANSWER.—In the majority of cases, siderosis bulbi of not too severe a type will disappear spontaneously subsequent to removal of the foreign body (E. Cramer, Kurzes Handbuch der Ophthalmologie **4**:516, 1931). If the intra-ocular foreign body has been present for considerable time before removal, there is great danger that retinal degeneration will have taken place before the siderosis disappears. Another danger is the development of siderosis lentis or iron cataract, with the characteristic yellowish discoloration of the anterior cortex. As far as is known, there is no known agent that will hasten the disappearance of siderosis after removal of the iron foreign body from within the eyeball. However, any means of promoting the exchange of intra-ocular fluids will have some little influence on the iron deposits.

PORTMANN OPERATION FOR TINNITUS AURIUM

To the Editor:—There has recently been brought to my attention some work done by Dr. Portmann of France whereby a separation of the cerebellar dura mater from the petrous portion of the temporal bone has resulted in a cure for stubborn persistent cases of tinnitus aurium. The theory is that with a separation of that portion of the dura there takes place a rupture of the saccus endolymphaticus and a reduction of pressure within the labyrinthine system. Only three such operations have been done in France by Dr. Portmann and none so far in this country, I am told. I am wondering whether such a procedure would be worth venturing in a drastic effort to cure agonizing tinnitus. Kindly advise me as to the general opinion in such matters.

NATHAN ARTSIS, M.D., Brooklyn.

ANSWER.—Professor Portmann of Bordeaux, when in this country some years ago, presented a method of operating or opening the saccus endolymphaticus for the purpose of reducing the pressure within the vestibular apparatus and of relieving tinnitus aurium. We have been unable to find any reference to work of this kind done in this country and are unable to express a definite opinion regarding the value of this procedure. There is, of course, the possibility that infection may result from the operative measures and, if so, suppurative meningitis might result, with the usual fatal ending. We suggest that the inquirer write directly to Dr. Georges Portmann, Bordeaux, France, for full details regarding clinical results that he has obtained with this operation thus far.

OPERATION ON CATARACT

To the Editor:—A woman, aged 80, has a mature cataract in the right eye, ready for operation. By all the tests the lens is mature, the tension normal, the iris active to light. She locates the candle light properly. However, there is an extremely shallow anterior chamber or no anterior chamber at all. I wish to make the incision with a Graefe cataract knife and do an iridectomy and capsulotomy. I cannot see any space between the cornea and the iris for the cataract knife. As soon as the knife penetrates the cornea, the point is bound to touch the iris and cause pain and hemorrhage and so prevent passing the knife across the anterior chamber to make the counterpuncture. I shall be pleased to receive some suggestion.

M.D., Minnesota.

ANSWER.—If the lens is mature and the tension of the eyeball normal, there must be some pathologic change present to account for the absence of the anterior chamber. Even if the chamber is extremely shallow, the incision can be made with a Graefe knife provided perfect anesthesia is produced by an adequate retrobulbar injection of procaine hydrochloride. About 1 cc. should be injected behind the eyeball, combined with 0.2 to 0.4 cc. of 1:1,000 epinephrine hydrochloride solution. The latter is for the purpose of reducing the intra-ocular tension and thus possibly deepening the anterior chamber. But if the space is still too small to permit of the introduction of a Graefe knife, the incision at the limbus may be made with a broad-bladed keratome and the wound enlarged with scissors.

INJECTION OF VARICOSE VEINS

To the Editor:—1. Has magnesium sulphate been used in the treatment of varicose veins by the injection method? If so, in what percentage. 2. Given an elderly woman who has had the veins of both legs ligated seven years and who now presents numerous dilated superficial veins and an extensive discolored area toward the center of which is a small ulcerated area, should one begin by injecting the veins of this leg or by treating the ulcerated area with the "venous heart" or sponge method? If the patient is treated with the sponge method should one expect the ulcer to enlarge primarily, i. e., a sloughing of the discolored area? Please omit name and town.

M.D., Kentucky.

ANSWER.—1. Any hypertonic solution will produce endothelial damage and could thus be used to obliterate varicose veins. In the case of magnesium sulphate, solutions of from 25 to 30 per cent are markedly hypertonic. Its use, however, is not recorded in the literature and nothing is known about any particular advantage it might have over hypertonic solutions of dextrose or sodium chloride. In using such a solution, one would have to consider the effect of this salt on motor nerve endings, on blood pressure and on red cells (as to hemolysis).

2. In the case described, if there are no contraindications to the injection of the veins, such as deep venous insufficiency or latent infection, it would be permissible to inject the veins above the ulcer and use sponge pressure with an elastic adhesive bandage or an Unna's paste boot between treatments. The large discolored area around the ulceration represents multiple capillary thrombi with change in capillary permeability, and transudation of hemoglobin and its split products. This area should not slough during the treatment, as a break in the skin on such an area would leave a deep, torpid ulcer with poor healing tendency. The amount of scar tissue around the ulcer determines the rapidity with which such a thrombophlebitic ulcer heals.

ETHMOIDITIS AND ANOSMIA

To the Editor:—I have under my care a man, aged 45, who has a bilateral ethmoiditis and on whom I performed an operation for removal of polyps eighteen months ago. Eighteen months previous to the removal of the polyps his sense of smell disappeared completely. About a year ago, or six months after the operation, he had an attack of acute arthritis involving several joints. This attack lasted one month and during that time his sense of smell returned completely but left when he recoverd from his illness. Is there any explanation for this? What treatment might be of any benefit in treating this condition that might restore his sense of smell? Please omit name.

M.D., New York.

ANSWER.—Loss of the sense of smell is frequently associated with ethmoiditis, particularly when associated with polypoid degeneration of the membranes. This mechanically causes an obstruction to the olfactory area. Loss of the sense of smell under the same conditions may be due also to serious inflammatory changes of the olfactory membrane. In the former condition, the sense of smell returns after the removal of the obstruction. Under all conditions the prognosis must be guarded.

The condition under which the sense of smell returned in this case suggests that as a result of the fever the olfactory nerve was affected much in the same manner as that in which neuritis of the optic and auditory nerves in some instances is affected by foreign protein therapy and pilocarpine sweats. Treatment with foreign protein is worth a trial if the patient's general condition is sufficiently good to enable him to withstand the reaction.

SYPHILIS WITH DIABETES

To the Editor:—I have a patient with a four plus Wassermann reaction and a blood sugar of 445. He is 20 years of age and his diabetes began about the same time as the primary lesion, in January, 1932. The diabetes is under control with a high carbohydrate diet and sufficient insulin to keep the blood sugar within normal limits. Will you kindly outline a proper schedule for antisyphilitic treatment in this type of case with especial reference to the arsenicals? If this is printed, kindly omit name.

M.D., New York.

ANSWER.—Theoretically it would seem that diabetes and syphilitis would be found together quite frequently. This is not always borne out in practice, and it is only occasionally that antisyphilitic treatment in a diabetic patient seems to influence the blood or urine in any way.

In a young man with recently acquired syphilis in addition to diabetes, it would seem proper to administer the same course of treatment that would be given to any young adult with a recent syphilitic infection. The diabetes should in no way contraindicate the efforts to cure the syphilis. It consists of giving six injections of one of the arsphenamines, preferably arsphenamine, at weekly intervals, followed by twelve injections of a bismuth preparation intramuscularly. At the completion of the bismuth course, the arsphenamine is immediately started again. This procedure is continued until the patient has had a minimum of thirty injections of arsphenamine and sixty of the bismuth compound. It is essential, of course, before the completion of the course, to examine the spinal fluid.

USE OF ACIDOPHILUS PRODUCTS

To the Editor:—May I ask you to be good enough to enlighten me as to the contraindication of the use of acidophilus products, especially in gastric hyperacidity?

MICHAEL A. COHN, M.D., Brooklyn.

ANSWER.—Gastric hyperacidity should not be a contraindication to the use of the acidophilus culture. The culture itself should have no effect on gastric secretions. Since the culture is practically always administered with a vehicle, usually containing lactose, it is possible that the vehicle may somewhat stimulate the secretions. This may be the result of a mild psychic stimulation or after ingestion there may be a definite chemical secretion. If the culture and its vehicle are combined with milk, its action as a secretagogue is practically nullified. There should therefore be no objection to using the acidophilus culture with the lactose in this manner.

ROENTGEN TREATMENT OF MENORRHAGIA

To the Editor:—What can you tell me concerning roentgen treatments for menorrhagia caused by ovarian lesions or influence? Please omit name.

M.D., Maine.

ANSWER.—Functional menorrhagia is a direct result of derangement of the follicle-corpus luteum sequence in the ovaries. This may be primary in the ovaries or may be secondary to disease of the hypophysis or thyroid. It may occur precociously or at any time during the menstrual life of the patient.

Roentgen therapy is suitable for women approaching the menopause, since the dosage used, from 800 to 1,000 roentgens, may be enough to precipitate the menopause. However, such patients should have a diagnostic curettage to rule out malignant growths of the uterus. If radium is available, it simplifies the treatment to follow the curettage by 1,500 mg. hours of radium rather than to have to resort to roentgen therapy.

In younger women in whom preservation of fertility may be a factor, radiotherapy, by either x-rays or radium, is debatable; a limited dose may give a temporary relief, may produce permanent amenorrhea and sterility or may by its effect on the ova result in the birth of an abnormal fetus. Organotherapy is the better and safer treatment for these younger women.

Menorrhagia due to inflammatory disease of the ovaries is not amenable to roentgen therapy but should be controlled by appropriate treatment of the adnexa.

Ovarian tumors, either benign or malignant, usually do not affect the menstrual cycle. Their influence tends toward amenorrhea. The treatment is usually surgical.

TRICHOMONAS IN FECES

To the Editor:—Will you please advise me of the treatment of a case of a child, aged 7 years, who has a positive culture of trichomonas in the feces? The child has no symptoms except that he is not average in size or weight. Please omit name.

M.D., Ohio.

ANSWER.—There is little or no definite evidence of consistent pathogenicity of Trichomonas hominis. These intestinal flagellates are quite resistant in their active form. No cysts have been described, so that infection must be by mechanical transfer through the agency of fecally infected water or food. They are often reported in diarrheal conditions and it is probable that their rate of multiplication increases greatly as a sequel to diarrhea from any cause. They ingest red blood cells as an article of food. Their numbers are usually proportional to the degree of diarrhea but are probably a sequel and rarely a cause of the diarrhea. They have been described as tissue invaders in kittens by Kessel (*Tr. Roy. Soc. Trop. Med. & Hyg.* **22:** 61, 1928) and by Wenyon. Their frequent appearance with no symptoms and the absence of a common or even demonstrable cyst state leads to the conclusion that their pathogenicity is limited to massive infections or to patients with otherwise lowered resistance. In the case mentioned, it is questionable whether any treatment is indicated for the trichomoniasis. Flagellate infections are always resistant to treatment and inconstant in appearance, and no specific drug is available; but if treatment is decided on, it should be along the same lines as for amebiasis, with an arsenical such as carbarsone (for a 7

year old child in a dosage of 0.08 Gm. in gelatin capsules twice daily for ten days), or iodine derivatives such as chiniofon. Treatment, however, should be directed primarily to the general health, vitamin balance, hygiene, and other abnormal conditions that may be present even to a minor degree.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 10. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Milwaukee, June 12. Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: The *written* examination will be given in cities of the United States and Canada where there is a Diplomate who may be empowered to conduct the examination, April 1. The *general oral, clinical and pathological* examination will be held in Milwaukee, June 13. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OTOLARYNGOLOGY: Milwaukee, June 12. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

COLORADO: Denver, Jan. 3. Sec., Dr. William Whitridge Williams, 422 State Office Bldg., Denver.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, Dec. 30. *Regular.* Washington, Jan. 9-10. Sec., Dr. W. C. Fowler, 203 District Bldg., Washington.

HAWAII: Honolulu, Jan. 9-12. Sec., Dr. James A. Morgan, Room 48, Young Bldg., Honolulu.

MINNESOTA: *Basic Science.* Minneapolis, Jan. 3-4. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Regular.* Minneapolis, Jan. 17-19. Sec., Dr. E. J. Engberg, 524 Lowry Medical Arts Bldg., St. Paul.

MISSOURI: Jefferson City, Jan. 2-3. Sec., Dr. James Stewart, Capitol Bldg., Jefferson City.

NATIONAL BOARD OF MEDICAL EXAMINERS: The examination will be held in centers where there are five or more candidates, Feb. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEVADA: *Reciprocity.* Carson City, Feb. 6. Sec., Dr. Edward E. Hamer, Carson City.

NEW YORK: Albany, Buffalo, New York, Syracuse, Jan. 30–Feb. 2. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, Room 315, State Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, Jan. 3-6. Sec., Dr. G. M. Williamson, Grand Forks.

OREGON: Portland, Jan. 3-5. Sec., Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 3-7. Sec., Mr. Charles D. Koch, Harrisburg.

RHODE ISLAND: Providence, Jan. 5-6. Dir., Dr. Lester A. Round, 319 State Office Bldg., Providence.

SOUTH DAKOTA: Pierre, Jan. 17. Dir., Dr. H. R. Kenaston, Bonesteel.

WASHINGTON: *Basic Science.* Seattle, Jan. 12-13. *Regular.* Seattle, Jan. 16-17. Dir., Mr. Charles R. Maybury, Olympia.

WISCONSIN: Madison, Jan. 10-12. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

WYOMING: Cheyenne, Feb. 6. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne.

Colorado July Examination

Dr. William Whitridge Williams, secretary, Colorado State Board of Medical Examiners, reports the written examination held in Denver, July 12-15, 1932. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Forty-nine candidates were examined, 46 of whom passed and 3 failed. The report follows:

College	PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine	81.6, 82.7, 82.8, 83.5, 83.8, 84.1, 84.1, 84.6, 84.6, 84.7, 85.1, 85.3, 85.5, 85.5, 85.8, 86, 86.3, 86.8, 86.8, 87, 87, 87.5, 87.5, 87.6, 87.6, 87.7, 87.7, 88.1, 88.1, 88.5, 88.8, 89, 89.1, 89.7, 90, 90.1, 90.3, 91, 91	(1932)	80.8,
Osteopaths	79.7, 80, 80.2, 82.6, 82.7, 85		

	FAILED	Per Cent
Osteopaths	72.6, 73,	73.8

Dr. Williams also reports 6 physicians licensed by endorsement of credentials on July 11 and 4 on Aug. 2, 1932. The following colleges were represented:

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Northwestern University Medical School		(1923)	Minnesota
Harvard University Medical School		(1931)	N. B. M. Ex.
University of Michigan Medical School		(1931)	Michigan
University of Minnesota Medical School		(1923)	Minnesota
Missouri Medical College		(1886)	Missouri
Washington University School of Medicine		(1931)	Missouri
University of Nebraska College of Medicine		(1928) (1931)	Oklahoma, Texas
University of Tennessee College of Medicine		(1929)	Tennessee
Baylor University College of Medicine		(1930)	Texas

ABSTRACT OF THE FINAL REPORT OF THE COMMISSION ON MEDICAL EDUCATION

In 1925 the Association of American Medical Colleges created a Commission on Medical Education for the purpose of making a study of the educational principles involved in the training and licensing of physicians and to make suggestions that would bring them into more satisfactory relationships with the newer conceptions and methods of university education, on the one hand, and with the needs of present-day society, on the other. This commission consisted of A. Lawrence Lowell, president of Harvard; Walter L. Bierring, secretary of the Federation of State Medical Boards; George Blumer, clinical professor of medicine at Yale; Hugh Cabot, consulting surgeon at the Mayo Clinic; Samuel P. Capen, chancellor of the University of Buffalo; David L. Edsall, dean of Harvard Medical School; William Darrach, dean emeritus of the College of Physicians and Surgeons of Columbia University; Sir Robert Falconer, president of the University of Toronto; Henry Gale, professor of physics at the University of Chicago; Michael F. Guyer, professor of zoology at the University of Wisconsin; Walter A. Jessup, president of the State University of Iowa; Thomas S. McDavitt,* secretary of the Minnesota Board of Medical Examiners; Lafayette B. Mendell, professor of physiological chemistry at Yale; William Allan Pusey, emeritus professor of dermatology at the University of Illinois; Olin West, secretary of the American Medical Association; Ray Lyman Wilbur, Secretary of the Interior, and Hans Zinsser, professor of bacteriology and immunology at Harvard. The director of studies was Willard C. Rappleye.

Three chapters deal with the relationships between the medical profession and the general public. The universities, the medical profession and those responsible for providing an adequate health service for the country should exert every effort to make the opportunities in this field attractive to young men and women of character, ability and devotion to high ideals of public service. In competition with other careers, medicine must offer satisfactory rewards and opportunities if the health program of the country is to be maintained on a high level. Societal evolution involves corresponding changes in the forms of medical practice, but regardless of form the unit of practice remains, and must remain, the individual patient. In a score of years national income has trebled, but health services have not received their full share of that optional expenditure which is not concerned with the mere necessities of life. Medical science, meanwhile, has reduced the death rate to three fifths of what it was fifty years ago and banished such scourges as smallpox, typhoid, yellow fever, typhus, bubonic plague and cholera. The incidence of diphtheria, tuberculosis, malaria and hookworm has been greatly diminished.

The problem of adjusting medical service to the needs of different sections of the country and the various groups of the population is exceedingly complex. Public thinking may easily be led astray by present tendencies to lay stress on the organization and cost of medical care rather than on the necessity for an adequate medical service of high quality. Specialization is necessary but may be carried too far. Laboratory tests and roentgen examinations are useful but should not be employed indiscriminately. Only a relatively small proportion of illnesses actually require treatment by specialists or expensive laboratory procedures.

Not over one third of the expenditure for medical care goes to physicians. The mean income of the doctor is low when consideration is given to the investment of time and money in his training. There is, however, a wide spread between the highest and the lowest, owing to the fact that the fees of the general practitioner are generally standardized while the public willingly pays much higher fees to the specialist.

Total expenditures for medical services of all kinds do not greatly exceed two and one-half billion dollars, or 3 per cent of the national income in normal times. This figure is considerably less than the annual premiums paid on life insurance and about one fifth of the annual outlay for passenger automobiles, noncommercial use of gasoline, tobacco, candy, cosmetics, soft drinks, toys, jewelry and amusements. The burden of illness and incapacity is not evenly distributed. Twenty-five

* Deceased.

per cent of the entire load is borne by about 5 per cent of the people. Prolonged illness may easily constitute an economic catastrophe. The serious problem is not to meet the average cost of medical care but to meet the unusual occasion which may demand a large fraction of the year's income. Collective insurance against sickness was first formulated in the French convention of 1794; first applied in the German sickness insurance act of 1883. Since then many organizations have attempted to distribute the burden of sickness over a long period of time and over an entire class of the population, thereby anticipating expenditures on account of illness instead of trying to meet them after the misfortune has occurred. Voluntary sickness insurance has developed many defects. At present the trend is toward compulsory insurance even though this form is exposed to the hazards of political control. Experience abroad has shown that the quality of medical service is directly related to the degree of responsibility placed on the medical profession. All previous efforts have shown that insured persons demand more services than the uninsured, thus increasing the cost.

Group practice has developed in response to a demand that complete scientific study and treatment should be more widely available. When properly conducted it can provide at less cost and greater convenience to the patient a quality of service superior in at least some respects to that provided by individual practitioners. The tendency to require more consultations and examinations than are needed, and the limitations placed on exceptionally able individuals, are among the disadvantages of group practice. Sound medical service can be rendered only when a single physician assumes the direct responsibility for a given patient.

Hospitals, since 1920, have increased in numbers from 1,000 to 6,600. They occupy a strategic position in the community to coordinate the various professional, social and economic activities dealing with sickness, the training of physicians and other health workers, and the education of the lay public in health matters.

As in many other fields, so in medicine, cooperation is supplanting competition. Expensive equipment should not be needlessly duplicated. In fact, diagnostic facilities are being provided at community expense. There is urgent need for a dispassionate study of the most satisfactory plan by which medicine can extend its usefulness in modern society.

Without attempting to predict the form that medical practice will take in the future, it is clear that conditions today are different from those of the past and will undergo still further transformations. The preparation of students for these newer obligations and opportunities is not likely to be less scientific than it has been, but it is likely to be different, particularly in motivation. The human organism, whose health is the primary concern of the physician, is not altered fundamentally by changes in community life or by the character of the diseases to which he is subject.

An attempt has been made to sample medical service by analyzing the activities of a group of 500 recently graduated physicians engaged in general practice. It was found that 55 per cent of the patients were seen at the office, 35 per cent at their homes, and 10 per cent in a hospital. The majority of illnesses seen by a physician are not difficult of diagnosis for a well trained physician and most of them require rather simple treatment. Tables are presented showing the age distribution of disease, maternal mortality in various countries, and the causes of death in the registration area of the United States. Statistical studies, however, fail to reveal the very large number of persons handicapped and impaired by functional nervous disorders independently of organic disease. The public is not yet sufficiently well informed to support efforts to secure the maximum benefits of modern knowledge regarding health and the prevention of disease.

There are in the United States approximately 156,440 licensed physicians, or 1 to 780 of the population. In European countries the ratio is in the neighborhood of 1 to 1,500. Assuming that 1 to 1,200 would be a correct ratio for this country, we now have an excess of 25,000 doctors. The recognized medical schools of the United States are graduating about 5,000 a year. Graduates from unapproved schools, together with those from Canada and Europe, bring the annual increment to the medical profession up to 5,400. At this rate the number of physicians will increase more rapidly than the general population, so that by 1950 the ratio of physicians to population will be 1 to 750.

The distribution of physicians is, of course, unequal. California has 1 to 483; Montana and South Carolina, 1 to 1,430. The medical profession has participated in the general trend toward urbanization of the population. Improved means of communication enable the doctor to cover a larger territory than heretofore. The development of rural hospitals is contributing to the solution of the problem. Some remote communities cannot support medical services in the form of private practice. In such districts it may be desirable to employ a physician on a salary. Not only is there a concentration of physicians in the large cities, but a large proportion of them limit their practices to a specialty, often without sufficiently broad clinical experience.

Of graduate medical education, including internships, the report says:

Every physician must continue to be a student throughout his professional life if he expects to be scientifically successful. The responsibility of providing opportunities for the continuing education of doctors must be shared by the medical profession and the medical schools if they are to work out this essential feature of public service. Artificial segregation of the basic medical course, the internship, the training of the specialist, and the continuing education of the general practitioner is likely to create serious gaps in the education of physicians which should be avoided. The university's endeavors in the various aspects of medicine should be closely correlated under a unified program.

Specialism is an essential part of modern practice. To it must be credited no small part of the advances in medical knowledge of recent years. It is recognized, however, that many specialists are self named; many are not fully trained even in their limited field and still less well equipped in the broad fundamentals of medicine; some are frankly commercial. The medical profession and the public have a joint responsibility in guaranteeing that those who claim special knowledge are in fact experts in their fields. A particular identification should be created for qualified specialists, such recognition to be granted only on evidence of the successful completion of an adequate course of training.

Short courses of at least two types are also needed; for those already engaged in special practice, brief intensive advanced courses, which are most satisfactorily given at teaching centers; and continuation courses covering the various activities of the general practitioner. Instruction of this character is often carried to the physician so that he may not be obliged to leave his practice. The Extension Division of the University of North Carolina undertook this work in 1916. Other universities and many state societies have planned and executed similar programs.

The Danish Medical Association publishes annually a list of qualified specialists, all of whom must have met the following basic requirements:

1. Graduated at least six years previously.
2. Had recognized intern service of at least one year.
3. Had at least two years of practice outside his specialty.

In addition to the foregoing, each of the specialties has its own specific requirements. In Canada, the province of Alberta has enacted legislation providing that: "No person shall advertise or hold himself out to the public as a specialist . . . without having received from the registrar of the University of Alberta a certificate of having complied with such conditions precedent as to qualification or fitness as may be prescribed by the Senate of the said University."

The internship is now regarded as a highly important part of the basic preparation for the practice of medicine and should be closely correlated with the objectives, methods and recent changes in the medical course, particularly in relation to clinical clerking, which, when well conducted, gives the same type of experience that the internship was originally designed to provide, although it is less advanced. An internship should be required before a license to practice is granted, but it is educationally unsound to require that all graduates should have the same type of service. Regardless of type, all internships should be educational in purpose and methods, with competent supervision of the educational needs of each student. Experience in the outpatient and community care of patients should

be provided in order to prepare the student most satisfactorily for community practice. Hospitals are concerned so largely with serious disease and surgical conditions that the intern often secures an erroneous impression of the medical needs of the community which makes him unduly reluctant to enter practice at a distance from a hospital center.

The purpose of medical licensure is to protect the public from incompetent practitioners by establishing standards of education and conducting examinations to test the knowledge and fitness of candidates. In this country it has become a function of state boards which are largely detached from the educational program. As the situation changes, however, the license to practice should be granted directly on the basis of graduation from an approved medical school and the completion of a satisfactory internship. Adequate safeguards can be provided through inspections and visits to the schools by competent observers and by other devices. The most important qualifications of an individual for the practice of medicine are character, native ability, industry, training and experience. These qualifications can be judged best by a reliable faculty under whom the individual has studied.

The several expedients and political compromises which give legal and public recognition to various branches of the practice of medicine based on different educational and professional standards are not in the interests of sound public policy. All practitioners of the healing art should be thoroughly trained, and every effort should be made to create a public opinion which will support a program of sound licensure of practitioners.

The medical course has for its objective a sound preparation for some form of medical practice. The crucial element in medical education is the student, on whose character, interest, preparation, ability and industry the results largely depend. The aim should be to develop in him sound methods and habits of study and arouse an interest in the fundamental problems of medicine which will equip him to continue his own self education throughout his professional life. To this end greater responsibility is placed on the student for his own training. The new program is built largely on small sections, personal contact between instructors and students, seminars, conferences, free periods for reading, independent work and study, clinical clerking, the case method of teaching, and similar schemes, instead of reliance on didactic lectures, passive demonstrations and amphitheater clinics.

Efforts are being made to correct the teaching of too many subjects in too great detail, the dependence on memory alone, the excessive reliance on laboratory procedures as a method of education, the artificial separation of teaching in the several sciences and clinical fields, the overemphasis on the clinical specialties, the inadequate instruction in therapeutics and preventive medicine, and the incomplete training in established clinical methods of study. The medical course should be considered as a unit, not as a series of isolated fields of science and clinical medicine.

Emphasis on disease prevention and control and on early diagnosis and appropriate treatment of incipient disease and defects is gradually permeating all fields of instruction. The medical, educational, legal and economic importance of mental diseases presents a major challenge to the profession. While conspicuous advances have been made recently in the teaching of psychiatry, there is great need of sound basic knowledge of the underlying mechanisms of these disorders, which can be secured only through fundamental research in neuroanatomy, embryology, neurophysiology, endocrinology and related fields. Functional disturbances are coming to be more widely understood and emphasized in medical practice and teaching. They will be concerned in the future not only with well defined disease and disability but also with the less tangible social, economic, public and community factors.

Dental education should be more closely correlated with medicine. The medical profession should also take more responsibility in directing and guiding other medical services, as nursing, physical therapy, laboratory and x-ray technics, medical social work, hospital and clinic administration, and related fields.

Inquiry of the officers of state medical boards elicited replies to the effect that, on the whole, present-day graduates are well prepared to begin practice. Criticism, however, was directed against the teaching in therapeutics and preventive medicine and against overspecialization. Recent graduates regard their training as adequate in respiratory infections, obstetrics, minor surgery, minor medical complaints, gastrointestinal diseases, children's diseases and general medical disorders. A smaller number were satisfied with their preparation in contagious diseases, surgical emergencies, infant feeding, functional nervous disorders, nutritional disturbances, eye and ear diseases and orthopedics.

Premedical training has been, since 1918, definitely established on a minimum basis of two years of college work, including physics, chemistry and biology. Owing to the excessive number of applicants, the medical schools are in a position to make a selection of the more desirable students, which should be based on character, personality, intellectual ability, scholastic achievement, industry, general culture and evident grasp of the principles of the underlying sciences, rather than on specific time, course and subject requirements. Many applicants do not possess entirely satisfactory qualifications for the study of medicine and should be dissuaded by college advisers from choosing this career. Improvements in secondary and college education should prepare students to enter on the study of medicine at an earlier age than at present.

Approximately thirteen million dollars is expended for the maintenance of medical schools in the United States and Canada (1927). Revenue is derived from the following sources:

Students' fees	$ 4,057,304
Endowment	2,784,527
State or city	2,574,973
Other sources	2,567,059
	$11,983,863

The average cost per medical student for 1926-1927 was $704, while the average student fee was $254. Nearly two thirds of the cost, $450 per student, must be contributed by the public either in the form of voluntary gifts or by taxation. An appreciable part of the medical school budget is devoted to the care of patients who are used for teaching purposes and to research. How much of the total cost should be charged to these functions it is impossible to say, since there is no generally accepted system of cost accounting. The cost to the student of a medical education in both time and money is not without an important sociological and economic bearing. The average expenditures of a group of medical students for tuition, fees, books and living expenses run about $1,163 a year.

In European countries, the medical curriculum varies in length from five to nine years. Its most characteristic feature is the large measure of responsibility placed on the student for his own training and the flexibility of the courses of instruction. In Germany, Austria and some other countries the training is largely passive, theoretical and demonstrative in character. In Great Britain, France, Sweden and the Netherlands it is essentially practical. Examinations are usually comprehensive in character, and oral tests are widely employed. Hospital internships are not usually considered a part of the prescribed educational plan. In certain countries only those who have secured an adequate training may claim to be specialists. The various forms of social medicine are having a definite effect on medical practice and on the type and quality of students entering medicine.

The following is quoted from the summary of the report of the commission:

"The hope of democracy is in trained leadership. The medical profession is the trustee of the essential knowledge and has the personnel necessary to solve a large national problem. It will occupy its proper place in society to the extent that it provides leadership and an effective program of medical service built upon thoughtfully conceived plans of medical and postgraduate education, proper organization of the profession, and the advocacy of unselfish and courageous public and professional policies.

Sickness affects, sooner or later, every member of society. Provision must be made to care for it, with full recognition of the technical character of the services involved, of the necessity for public education regarding the value and limitations of scientific medicine, and of the importance of creating conditions which will attract and retain the highest type of physician, dentist, nurse and public health administrator. There is urgent need for the coordination of the efforts of the various groups and individuals in the field, to the end that all may actively participate in achieving the aims of a collective policy."

Book Notices

Injuries of the Eye: Diagnosis and Treatment, Forensic Procedures and Visual Economics. By Harry Vanderbilt Würdemann, M.D., Sc.D., F.A.C.S., Colonel, Medical Reserve Corps. Second edition. Cloth. Price, $13.50. Pp. 900, with 246 illustrations. St. Louis: C. V. Mosby Company, 1932.

The first sentence of the foreword of this book reads "This book is offered as an exhaustive and authoritative work upon Injuries of the Eye." The modern ophthalmologist may not agree with the qualifying adjectives of that introduction. The book is divided into three parts, the first dealing with general injuries of the eye and adnexa, the second with injuries of the special structures of the eye, and the third with forensic medicine. The illustrations are of varying quality; some are excellent and pertinent; others are good but are too vague to be of value or else do not pertain to the text; still others (usually roentgenograms) are mere smears of black and white. Misstatements occur throughout the entire work. Many of these are of minor import, but others are so vital as to justify challenge. Particular reference is made to the statements that occur on pages 22, 156, 211, 272, 431 and 623. The frequent use of faulty diction may be illustrated by the following excerpts, quoted verbatim: "The pathology is purely theoretical, the main theories being increased intraocular pressure" (speaking of keratoconus); "Pfalz ventilates the question, How long after a traumatism. . . ." In the foreword the statement appears, "No attempt has been made in this book to cover the literature thoroughly." That is self evident; but if the opinion of others is to be quoted, why not modern opinions rather than those that have become antiquated? In the discussion on intracapsular extraction of cataract, the last literary reference is dated 1910, which period, as every ophthalmologist knows, was practically the beginning of modern intracapsular work. Again, in the discussion on keratoplasty, the last referance dates from 1906 and no attention is paid to the large amount of work that has appeared since then. On page 225 occurs the following statement: "The slit lamp, while valuable as an academic instrument for microscopy of the living eye, is of no particular benefit in examining injury cases. This is my personal opinion and open to strenuous objection by its enthusiasts." Apart from the diction, that sentence arouses the wonder of the reader as to why the author spends the time and energy necessary for the production of a book of this size and yet refuses to accept the recognized modern advances of the last fifteen years. This failure to advance crops out elsewhere only too frequently, as in the complete omission of the use of foreign proteins and delimiting keratotomy in the treatment of corneal ulcers, in the persistent use of "keratitis punctata" when speaking of depositis on the posterior surface of the cornea, and in the complete ignoring of the American Medical Association rating tables for compensation due to ocular injuries. The modern concepts of detachment of the retina and of the surgical treatment of detachment are given but passing mention. On page 427 is found the statement: "Three cases of staining of the cornea with blood pigment out of fourteen reported in the literature have been examined microscopically." It might interest the author to learn that one man alone (Begle) reported the microscopic examination and chemical analysis of four cases as early as 1914. The extensive case reports are commendable and tend to prove the author's vast experience with injuries of the eye; but as "an authoritative work upon injuries of the eye" there is much left to be desired.

A Text-Book of Pathology. By W. G. MacCallum, Professor of Pathology and Bacteriology, the Johns Hopkins University, Baltimore. Fifth edition. Cloth. Price, $10. Pp. 1212, with 652 illustrations. Philadelphia & London: W. B. Saunders Company, 1932.

The first edition of this book was published in 1916. It was a new kind of textbook of pathology. It was not divided into general and special pathology. No attempt was made to describe systematically all diseases of each organ. It made no claims as a book of reference. Many sections in the conventional textbook of pathology were omitted. It discussed general principles of pathology as brought out and illustrated by the study of the more important common diseases. Predictions were made that it would not be a successful textbook. But here is its fifth edition, "thoroughly revised." Wherein lies the strength of MacCallum's book? Several factors must be considered. First, the soundness of the general plan of the book. The fundamentals of pathology can be taught successfully by the direct study of what takes place in the body in representative diseases of various kinds. For the inculcation of the basic general pathologic principles it is not necessary to present systematically all diseases. Second, the presentation of the subject matter throughout the book is lucid and scholarly, but not dogmatic. The impression is conveyed that the many kinds of contemporary knowledge are reflected as correctly as possible. Constantly the student is directed to helpful and necessary collateral reading. Third, special care has been taken in the selection, preparation and reproduction of the illustrations, which are models in instructiveness and workmanship. There is good reason to believe that MacCallum's Pathology will continue a leader in its field.

Experimental Pharmacology and Toxicology: A Selected Laboratory Course. By Henry G. Barbour, A.B., M.D., Yale University, New Haven, Connecticut. Fabrikoid. Price, $2.75. Pp. 141, with 14 illustrations. Philadelphia: Lea & Febiger, 1932.

Laboratory work in the medical sciences may be overdone, and the day is surely past when the value of a course was measured by the number of animals used. Courses may be uninteresting and pedantic, the work not significant or useful. In pharmacology, especially, it is easy to overburden and thus to confuse with detail; so any arrangement that combines brevity and simplicity together with clarity is commendable. Barbour's little book achieves a fair degree of success in reduction and selection of experiments without sacrifice of meaning and purpose. The laboratory exercises in the book are quite familiar. For the most part, the twenty-nine students' exercises and eleven demonstrations are well selected. The directions are simple and direct. For students passing from physiology to pharmacology, they are adequate. Commendable are the questions and clinical correlations accompanying each exercise. Papers selected for reading are few but well chosen. Some illustrations, mostly of results obtained by the author or his pupils, and blank pages for students' entries are included. On the whole, the book should be a useful and stimulating guide for medical students; only a blockhead could fail to react to the author's sincerity and belief in pharmacology.

An Elementary Psychology of the Abnormal. By W. B. Pillsbury, Chairman of the Department of Psychology, University of Michigan. Cloth. Price, $3. Pp. 375, with 7 illustrations. New York & London: McGraw-Hill Book Company, Inc., 1932.

This is intended to be a textbook for college students and to present the facts of abnormal psychology to general readers. It would probably be of little use to physicians in general, for it is greatly simplified, does not treat the subject from a new point of view, and has little clinical significance. The plan of the book is simple. It treats of the neuroses, the war neuroses, the systems of Freud, Jung and Adler, speech disturbances, feeblemindedness and the major mental disorders. As do other textbooks in abnormal psychology, it differs from those in psychiatry in that it discusses at length, in addition to the usual theoretical discussion of the psychoses, such phenomena as hypnotism, genius and sleep. Each topic is treated succinctly, and for the most part the entire discussion is the summary of leading textbooks on the subject. The chapter on hypnosis follows Bernheim and Bramwell. The main presentation of hysteria is that of Janet. The discussion of war neuroses, which is given a disproportionate amount of space, is based on the work of Yealland. More than half the book is taken up by a discussion of theories of the unconscious without any reference to specific application. While the descriptions of various theories are short and rather easily understood because of the simple way in which they are presented, the author does not permit himself to give any detailed discussion of the method of derivation. He does, nevertheless, append a short critical paragraph to his discussion of the thought of each school.

In his discussion of the psychoses the author follows the general symptomatology of the conventional textbooks, but neither the descriptions of the disorders nor the few illustrative cases give a picture so adequate that the disorders could be

recognized by college students. Of all the topics of mental health the psychoses are the most likely to interest the layman or physician, but the treatment of them here is too brief. The old terminology of Kraepelin is used throughout. Since there are only a few cases of disassociated personality in the literature, it would seem unnecessary to devote to them and theories about them a third as much space as is given to the psychoses.

There is included a chapter on sleep, which is treated only as a normal phenomenon without mention of its abnormalities. The short chapter on speech deficiencies summarizes the theories of stuttering from the freudian angle and from the standpoints of cerebral dominance and social relationship. There is a short chapter on feeblemindedness, an unnecessary chapter on Kretschmer's theory of the relation of insanity to genius, and a short general chapter on mental hygiene. Diagnosis from the point of view of clinical symptomatology is largely ignored throughout the book, while brief summaries of conservative methods of treatment are given. There have been many textbooks written on abnormal psychology in the last few years. The value of this one over any of the others lies in its extreme conservatism and simplicity.

A Textbook of Medicine for Students in Schools of Nursing. By A. S. Blumgarten, M.D., F.A.C.P., Associate Attending Physician to the Lenox Hill Hospital. With the assistance on "Nursing Care" of Eva Jimmerson, R.N., Assistant Director, Wyckoff Heights Hospital School of Nursing, Brooklyn, N. Y. Second edition. Fabrikoid. Price, $2.75. Pp. 662, with illustrations. New York: Macmillan Company, 1932.

This edition shows a number of additions, which are a distinct improvement. In many respects it is more difficult to write a textbook of medicine for nurses than for medical students; while it is desirable for the nurse to know as much medicine as possible, the limitations of education and time make the problem of what she is to learn largely one of judicious restriction. The greater part of the nurse's instruction should be in those diseases in which the nursing service is of most importance. A careful perusal of this book would seem to indicate that the author has adopted this general point of view. The explanations are clear and sufficiently concise, and the author has definitely succeeded in picking out the really salient points, not bewildering the student nurse with unnecessary detail. It should make an acceptable textbook for schools of nursing.

Pathologie und Therapie der Erkrankungen des Kehlkopfes, der Luftröhre und der Bronchien. Von Prof. Dr. M. Hajek, Vorstand der Universitätsklinik für Kehlkopf-, Nasen- und Ohrenkrankheiten in Wien. Abteilung III. Paper. Price, 68 marks. Pp. 433-705, with 170 illustrations. Leipzig: Curt Kabitzsch, 1932.

This is the third section of Hajek's complete work on diseases of the larynx, trachea and bronchi, of which the first two parts have already been reviewed. In this volume, innervation of the larynx and its various lesions are described. This is followed by tumors of the larynx, benign and malignant. Various laryngeal operations are described, and a discussion of malignant conditions of the trachea follows. There is a chapter on endolaryngeal therapy, followed by one on operations on the trachea. This last section of the work, by Hajek, is as beautifully illustrated, as systematically written and as intensely informative as were the first two portions. Altogether it forms as splendid a contribution to the knowledge of pathology and treatment of diseases of the upper air passages as one could wish.

The Curative Value of Light: Sunlight and Sun-Lamp in Health and Disease. By Edgar Mayer, M.D., F.A.C.P., Consultant in Light Radiation to the American Medical Association Council. Cloth. Price, $1.50. Pp. 175, with 13 illustrations. New York & London: D. Appleton & Company, 1932.

From a rich experience the author has developed this small, nontechnical volume of authentic information on the therapeutic value of ultraviolet radiation. The profession and the public, having been submerged with widespread misconceptions for many years concerning ultraviolet radiation, should welcome this handy book exposing unfounded beliefs and unwarranted claims. Medical truths of ultraviolet radiation are set forth in simple language and terminology, making popular reading matter for the layman. The public is told how to take sunbaths with natural or artificial sunlight, and is warned of the dangers incident to overexposure. One chapter is devoted to the use of sunlight in tuberculosis, pulmonary and surgical, a subject the author is eminently qualified to discuss. Because the author is a specialist in the field, the Council on Physical Therapy of the American Medical Association selected him as a consultant of light therapy. Much repetition has been resorted to in this book, probably because it is written for the public. A physician will find the volume a reliable work of reference for his inquisitive patients.

The Neural Energy Constant: A Study of the Bases of Consciousness. By John Bostock, M.B., B.S., D.P.M., Hon. Neurologist, Brisbane General Hospital, Queensland, Australia. Cloth. Price, 6s. Pp. 178, with illustrations. London: George Allen & Unwin, Ltd., 1931.

This unpretentious little book is well worth the perusal of physicians who are interested in the study of human behavior. The author is conservative, stating frankly that he presents only an hypothesis, but one which seems to offer a basis of explanation for many facts of clinical observation. Briefly, he suggests that consciousness is evolved from a primitive awareness that is a property of living cells by the development of, first, a center of awareness, possibly hypothalamic in location, second, an emotional level or level of "coarse adjustment," probably situated in the optic thalamus, and, third, a level of the "fine adjustment" consisting of the memory and associative systems of the cerebral cortex. Full consciousness occurs only when the three levels are "in correct functional apposition." Fatigability of nerve cells requires economy in their use and determines the limitations of momentary consciousness and results in the establishment of a limited "constant" of the neural energy that is engaged in the "circuit that subserves consciousness." The hypothesis is therefore distinctly schematic; as in all other schemas there is danger of oversimplification. Regarded purely as an hypothesis on which a plan of study can be built up, it merits consideration.

Diabetes in Childhood and Adolescence. By Priscilla White, M.D., Physician at the New England Deaconess Hospital, Boston. With a foreword by Elliott P. Joslin, M.D., Clinical Professor of Medicine, Harvard Medical School. Cloth. Price, $3.75. Pp. 236, with 25 illustrations. Philadelphia: Lea & Febiger, 1932.

In this book the same careful clinical observation and clinical judgment that made Joslin's original treatment of diabetes so popular are evident. Dr. White adopts the same methods, and as a result the book contains practically all that is now known about the various phases of diabetes in childhood. The thesis maintained is that "the care of the diabetic child resolves itself mainly into three factors: (1) the maintenance of the normal physiological processes of the growing and developing organism; (2) the prevention of the accidents of diabetes; (3) the eventual production of an individual who will be an economic and a social asset." Their observations are based on approximately 750 patients. The text is too full of details to warrant more than a general statement that no one treating diabetes in childhood or adolescence can well do without this book.

Mental Deficiency Due to Birth Injuries. By Edgar A. Doll, Ph.D., Director of Research, the Training School at Vineland, Winthrop M. Phelps, M.D., Professor of Orthopedic Surgery, Yale University School of Medicine, and Ruth Taylor Melcher, M.A., Research Assistant, the Training School at Vineland. Cloth. Price, $4.50. Pp. 289, with 26 illustrations. New York: Macmillan Company, 1932.

The authors present an intensive study of twelve cases of mental deficiency due to birth injury. They estimate that about 5 per cent of the inmates of the Training School at Vineland are mentally defective from birth injuries. That this etiologic factor in mental deficiency is difficult to determine is shown from their uncertainty as to the etiology in five of the selected cases. In addition to the mental retardation, most of the subjects show speech and motor disorders of varying severity, such as athetosis, spasticity, tremor and incoordination. The number of cases is too small to permit of conclusions as to such problems as the relation of behavior to cerebral integrity, the dependence of intelligence on speech and motor power, the effect of birth injury on intellectual development and behavior, the influence on intelligence of motor reeducation by means of physical therapy and more exact methods of mental testing. The book is a worthy attempt to solve some of these problems, but conclusions drawn from so few cases are scarcely warranted. Most enlightening is the chapter dealing with the

genetic psychologic study of the three most physically helpless subjects. It shows how estimates of mental capability can be made even when the forms of expression through speech and movement are lacking. Of the various mental tests used, the Stanford-Binet has proved most satisfactory, as it is found applicable through a wider range of intelligence for these physically handicapped individuals. The book will be found especially useful to those engaged in psychometric testing. It contains descriptions and evaluations of all the more important tests now in use.

Om Underkæbebrud. Af Oluf Bjerrum. Cand. Med. & Chir. Tandlæge ved Rigshospitalet. Paper. Pp. 264, with 57 illustrations. Copenhagen: Levin & Munksgaard, 1932.

This scholarly monograph from the State Hospital and from the Charity Hospital, Copenhagen, deals with traumatic fractures of the lower jaw and is based on the author's personal experience with 104 cases. A short historical review is followed by chapters on statistics and etiology, anatomic characteristics, roentgen examination, symptoms and diagnosis, complications, diagnosis, methods of treatment, and methods used by the author. There follow a schematic table of the author's cases and twenty-three pages of illustrations, consisting of roentgenographic reproductions, drawings and photographs of types of lesions and of apparatus and appliances used in treatment. A hundred pages is given over to detailed case histories, subdivided according to anatomic types of fractures. A selected list of references is appended. The monograph constitutes a valuable contribution to the subject of traumatic fractures of the lower jaw and its treatment.

Corpus tabularum ophtalmicarum. Tab. I. Nervus opticus et retina. Tab. II. Iris et choroidea. Tab. III. Cornea. Per Julius Szymański, M.D., Universitatum Paranaensis et Vilnensis Professor, Clinicae Ophtalmicae Director. Clinica Ophtalmica un. Vilnensis Batoreanae. Paper. Pp. 24, with illustrations. Vilna: Typis Josephi Zawadzki, 1930.

With the compliments of the Polish embassy at Washington comes this series of colored and black and white illustrations of the optic nerve and retina, the iris and choroid, and the cornea. The dedication reads "HONORIS CAUSA UNIVERSITATIS VILNENSIS DOCTORI JOSEPHO PILSUDSKI HOC OPUS AB AUTORE DEDICATUR." Accompanied by short explanations in English, there appear forty colored plates of various conditions of the optic nerve and retina, forty colored plates of the iris and choroid, and forty black and white illustrations of corneal conditions. On the back page are several illustrations of the eye clinic at Vilna, which is headed by the veteran Polish ophthalmologist Julius Szymanski. Six more such plates are now in the process of preparation and promise to be interesting.

Nursing in Nervous Diseases. By James W. McConnell, M.D., Neurologist to the Philadelphia General Hospital. Cloth. Price, $1.50. Pp. 153, with 24 illustrations. Philadelphia: F. A. Davis Company, 1932.

This small volume attempts in a rather simple form to give the basic facts in regard to the common nervous and mental diseases and some directions for handling patients afflicted with them. Neither the explanatory data nor the directions for nursing care are particularly well selected or brilliantly elucidated. There are many directions for the nursing of neurologic patients which might well be included in such a book but which are missing.

Le problème des glandes à sécrétion interne: Les propriétés physico-chimiques et pharmacodynamiques des hormones. II: La thyroïde. Par L. Blanchard, licencié ès sciences, vétérinaire sanitaire du département de la Seine, H. Penau, docteur ès sciences naturelles, pharmacien de 1re classe, et H. Simonnet, docteur ès sciences naturelles, agrégé des écoles vétérinaires. Les problèmes biologiques. Collection de monographies publiées sous le patronage du comité technique des sciences naturelles des Presses Universitaires de France. Boards. Price, 75 francs. Pp. 400, with 50 illustrations. Paris: Les Presses Universitaires de France, 1932.

This is a comprehensive, reliable and useful summary of the chemical composition, preparation and distribution in the body of the thyroid hormone, and, secondly, of its physiologic and pharmacologic action. The literature on both of these aspects of thyroid physiology is extensive, and in this monograph the references fill forty pages. The authors have achieved a commendable brevity, at some sacrifice of critical evaluation. The volume is a welcome and useful work for the biologic and clinical investigator of thyroid problems in health and disease.

Miscellany

PHARMACOPEIAL ADMISSIONS AND DELETIONS

The Subcommittee on Scope, of the Committee of Revision of the U. S. P. XI, has announced its first decisions on what is commonly spoken of as "Admissions and Deletions."

The members of the subcommittee are Dr. Reid Hunt, chairman, with Messrs. Bastedo, Beardsley, Bethea, Brown, Christian, Dooley, DuMez, Edmunds, Fantus, Hirschfelder, Lascoff, LaWall, McCoy, Nelson, Roth, Seltzer, Simpson, Starr, Tatum, Underhill,[1] H. C. Wood, Jr., and C. B. Wood.

The following lists are announced. Comments received by the General Chairman, E. Fullerton Cook, Forty-Third Street and Woodland Avenue, Philadelphia, will be issued in the official circulars under the author's name and referred to the subcommittee for its consideration. Criticisms or comments should deal with specific items and offer, if possible, facts to support the opinion expressed.

DELETIONS PROPOSED

The following U. S. P. X titles, 108 in number, have not been admitted to the U. S. P. XI:

Aconitina
Antitoxinum Tetanicum Crudum
Benzaldehydum
Buchu
  Fluidextractum Buchu
Calcii Glycerophosphas
Calumba
  Tinctura Calumbae
Cambogia
Cimicifuga
  Fluidextractum Cimicifugae
Cinchonidinae Sulphas
Colchici Cormus
  Extractum Colchici (Cormi)
  Fluidextractum Colchici (Seminis)
Colocynthis
  Extractum Colocynthidis
  Extractum Colocynthidis Compositum
Cotarninae Chloridum
Cubeba
Elaterinum
Emplastrum Capsici
Emplastrum Plumbi Oleatis
Eucalyptus
  Fluidextractum Eucalypti
Ferri Carbonas Saccharatus
Ferri Chloridum
Ferri Phosphas Solubilis
Ferri Sulphas Exsiccatus
Fluidextractum Belladonnae Foliorum
Fluidextractum Cinchonae
Fluidextractum Hyoscyami
Fluidextractum Rhei
Fluidextractum Scillae
Gambir
  Tinctura Gambir Composita
Glyceritum Phenolis
Granatum
  Fluidextractum Granati
Guaiacolis Carbonas
Hydrargyri Iodidum Rubrum
Hydrastis
  Fluidextractum Hydrastis
Hyoscyaminae Hydrobromidum
Infusum Digitalis
Ipomoea
  Resina Ipomoeae
Jalap
  Resina Jalapae
Krameria
  Tinctura Krameriae
Linimentum Calcis
Liquor Arsenii et Hydrargyri Iodidi
Liquor Ferri et Ammonii Acetatis
Liquor Plumbi Subacetatis
Liquor Potassii Arsenitis
Liquor Potassii Citratis
Liquor Potassii Hydroxidi
Liquor Sodae Chlorinatae
Liquor Sodii Hydroxidi
Liquor Zinci Chloridi
Lobelia
  Tinctura Lobeliae
Manna
Mistura Glycyrrhizae Composita
Morphinae Hydrochloridum
Oleoresina Capsici
Oleum Cajuputi
Oleum Cari
Oleum Tiglii
Paraformaldehydum
Pepo
Phosphorus
Pilocarpinae Hydrochloridum
Pilulae Asafoetidae
Pilulae Hydrargyri Chloridi Mitis Compositae
Pilulae Phosphori
Plumbi Monoxidum
Pulvis Jalapae Compositus
Pulvis Rhei Compositus
Quassia
Quininae Hydrobromidum
Quininae Hydrochloridum
Quininae Tannas
Rhus Glabra
  Fluidextractum Rhois Glabra
Salicinum
Senega
  Fluidextractum Senegae
  Syrupus Senegae
  Syrupus Scillae Compositus
Strontii Salicylas
Strophanthus
  Tinctura Strophanthi
Sulphonmethanum
Syrupus Rhei
Tinctura Asafoetidae
Tinctura Cardamomi
Tinctura Cinchonae
Tinctura Rhei
Tinctura Valerianae Ammoniata
Trochisci Acidi Tannici
Trochisci Ammonii Chloridi
Ulmus
Unguentum Iodoformi
Unguentum Plumbi Oleatis
Uva Ursi
  Fluidextractum Uvae Ursi

NEW ADMISSIONS

The following new admissions have also been announced:

Acriflavine
Antimeningococcus Serum
Antipneumococcus Serum—Type 1
Antiseptic Iodine Solution (exact formula to be determined)
Carbon Dioxide
Chiniofon (Sodium iodoxyquinoline sulphonate)
Digitalis Solution for Injection
Diphtheria Toxin for Schick Test
Diphtheria Toxoid
Emulsion of Mineral Oil
Ephedrine
Ephedrine Sulphate
Ethylene for anesthesia
Fluorescein
Histamine Acid Phosphate
  Solution of Histamine Acid Phosphate
Iron Arsenate (standardize for Ampul Manufacture)
Iron Arsenite (standardize for Ampul Manufacture)
Iron Citrate (Green) (standardize for Ampul Manufacture)
Liver Extract
Phenobarbital Soluble
Rabies vaccine
Tetraiodo-phenolphthalein Sodium
Tuberculin—Old
Typhoid Vaccine

1. Dr. Underhill died, June 28, 1932.

A few additional titles have been tentatively admitted, subject to the adjustment of possible patent or trade mark complications. In this list are Insulin and Viosterol and other similarly involved substances. It is hoped that arrangements can be made for the admission of most of these.

Medicolegal

Admissibility of Evidence of Scope of Chiropractic

(People v. Schuster (Calif.), 10 P. (2d) 204)

The California medical practice act, section 17, as amended by Statutes, 1929, page 435, provides that any person who practices any system or mode of treating the sick, or who in any sign or advertisement uses the word "doctor" or the prefix "Dr.," without having a valid, unrevoked license from the board of medical examiners, is guilty of a misdemeanor. Schuster, a licensed chiropractor, was convicted of violating this section of the act and appealed to the appellate department, superior court, Los Angeles County.

One portion of the complaint charged Schuster with using the prefix "Dr.," without having a license from the board of medical examiners. It is questionable, said the appellate department, superior court, whether Schuster is amenable to prosecution under the medical practice act for using the prefix "Dr." When the medical practice act was adopted in California, in 1913, it was the only act regulating the practice of the healing arts. It applied to chiropractors and required them to have certificates issued by the board of medical examiners. In 1922, however, an act regulating the practice of chiropractic was adopted by the people as an initiative measure (Stats. 1923, p. lxxxviii). It provides for a state board of chiropractic examiners and empowers it to examine those desiring to practice chiropractic and to issue certificates authorizing them so to do. Section 15 of this act provides that:

> Any licensee under this act who uses the word "doctor" or the prefix "Dr." without the word "chiropractor," or "D.C." immediately following his name . . . shall be guilty of a misdemeanor.

Section 18 of that act further provides:

> Nothing herein shall be construed as repealing the "medical practice act" . . . except in so far as that act . . . may conflict with the provisions of this act as applied to persons licensed under this act, to which extent any and all acts or parts of acts in conflict herewith are hereby repealed.

Section 15 of the chiropractic act, continued the court, attempts to regulate fully and completely the use by licensed chiropractors of the prefix "Dr." This section, being enacted subsequently in time to the medical practice act, by implication repeals the original medical practice act so far as the latter might in this respect be applicable to licensed chiropractors. It is to be noted also that section 18 of the chiropractic act, quoted above, is an express declaration repealing conflicting portions of the medical practice act. The fact that section 17 of the medical practice act which the defendant is accused of violating was amended in 1929 can have no effect as to chiropractors because of the paramount authority of an initiative law, which is not subject to amendment or repeal by the legislature unless it so provides. The chiropractic initiative act contains no such provision. The defendant, therefore, being a licensed chiropractor, could not be prosecuted under the medical practice act for any misuse of the prefix "Dr." but must be prosecuted, if at all, under the chiropractic act.

Another portion of the complaint against Schuster charged him with practicing a system and mode of treating the sick without having a valid unrevoked license from the board of medical examiners. This portion of the complaint, said the court, states an offense under the medical practice act, if the defendant did something he was not authorized to do under the chiropractic act. The holder of a chiropractic license is authorized, by section 7 of the chiropractic act, to "practice chiropractic in the state of California as taught in chiropractic schools and colleges. . . ." But, said the court, the defendant was not permitted to show that the acts he did were within the practice of chiropractic, which, if shown, would have been a complete defense to the complaint. The trial court rejected an offer by the defendant to prove that the treatments offered by him were taught in chiropractic schools and colleges as a part of chiropractic. This action on the part of the trial court was error.

For the reasons stated, the judgment of conviction was reversed and the case was remanded to the trial court for a new trial.

Workmen's Compensation Acts: Acute Dilatation of the Heart.—The employee was in apparent good health. His employment called on him to lift steel plates weighing from 30 to 74 pounds each, to carry them 18 feet and then to hammer them into proper shape with a 7 pound sledge hammer. One morning he worked on 9 plates. Neither during the work nor at its finish did he complain of any injury or pain. After the morning work he started to walk home but very shortly returned to the shop and asked one of the officers of the company to drive him home. During the drive he complained of pain, slumped down in his seat and said something about having an attack of indigestion. On his arrival home he was attended by a physician, who found his heart greatly dilated. Later, the employee told his wife and the physician that he had been doing heavy lifting and that he guessed he had hurt himself. He died the following morning from acute dilatation of the heart. His widow was awarded compensation by the workmen's compensation bureau on a finding that the death had been caused by an accident. The employer eventually appealed to the supreme court of New Jersey, contending that there was no evidence to sustain such a finding. The statements made by the employee to his wife and to the attending physician, said the supreme court, were admissible in evidence and could be considered along with other evidence but could not be relied on to prove the happening of an accident. The fact that the employee made no outcry, did not complain to his fellow workmen of any injury, and mentioned only indigestion as the cause of his discomfort on the way home, tended to negative the idea of the happening of an accident. But in the present case, said the court, we have a situation where a man, shown to be in apparent good health, arrives at work in good spirits and good condition, does heavy lifting and pounding with a heavy sledge on steel, is unable to walk home, and dies within eighteen hours of acute dilatation of the heart, a condition which, according to the employer's expert testimony, may be produced by strenuous exertion. The employee's attending physician testified that in his opinion the death was caused by dilatation produced by the heavy work done by the employee. This testimony in no wise depends on the statements made to him by the employee. It has a basis in the condition he observed in his patient, and in the admitted fact that the employee had been doing heavy work. The judgment for the employee's widow was consequently affirmed.—*Standard Water Systems Co. v. Ort (N. J.), 160 A. 523.*

Malpractice: Judgment Against Tort Feasor as Bar to Action Against Physician.—If a person injured through the negligence of another exercises due care in the selection of a physician to treat his injury, the malpractice of the physician which aggravates or increases the injury is regarded in law as a part of the original injury, for which the original wrongdoer is responsible, in the opinion of the Supreme Judicial Court of Maine. A release by the injured person of his right to recover damages from the original wrongdoer operates as a bar to an action for malpractice against the physician. The same result follows if the injured person obtains judgment in a suit for damages against the original wrongdoer and that judgment is satisfied.—*Wells v. Gould (Maine), 160 A. 30.*

Society Proceedings

COMING MEETINGS

American College of Physicians, Montreal, February 6-10. Mr. E. R. Loveland, 133-135 South 36th Street, Philadelphia, Executive Secretary.

Clinical Orthopedic Society, Chicago, January 12-14. Dr. E. B. Mumford, Chamber of Commerce Building, Indianapolis, Secretary.

Society of American Bacteriologists, Ann Arbor, Mich., December 28-30. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics and Gynecology, St. Louis

24: 319-480 (Sept.) 1932

Certain Endocrine Factors in Menstruation and Menstrual Disorders, with Especial Reference to Problems of Menstrual Bleeding and Menstrual Pain. E. Novak, Baltimore.—p. 319.
Study of Estrus-Producing Hormone in Circulating Blood of Normal Women. F. A. Ford and Selma C. Mueller, Rochester, Minn.—p. 329.
*Uterine Allergy. A. H. Rowe, Oakland, Calif.—p. 333.
Spinal Anesthesia: Report of Eight Hundred and Ninety-Six Cases. L. Averett, W. Sussman and D. Zimring, Philadelphia.—p. 339.
*Further Studies on Trichomonas Vaginalis (Donné). I. F. Stein and Elizabeth J. Cope, Chicago.—p. 348.
Hysterosalpingography in Sterility Studies. Margaret Castex Sturgis, Philadelphia.—p. 355.
Glycosuria in Pregnancy. R. Richardson and Ruth S. Bitter, Philadelphia.—p. 362.
Pregnancy and Diabetes. J. R. Reinberger and W. Rowland, Memphis, Tenn.—p. 370.
*Fetal Mortality as Affected by Duration of Labor. C. H. Peckham, Baltimore.—p. 372.
Treatment of Pelvic Inflammation by Medical and Surgical Heat. G. D. Royston and M. A. Roblee, St. Louis.—p. 381.
Critical Study of Technic and Clinical Value of Sedimentation Rate in Gynecology. M. J. Summerville and F. H. Falls, Chicago.—p. 389.
Sign for Detection of Small Amounts of Free Blood in Abdomen. R. A. Lifvendahl, Chicago.—p. 394.
Complete Traumatic and Spontaneous Intrapartum Ruptures of Uterus: Report of Three Cases with No Maternal Mortality, and One Living Child Removed from Abdominal Cavity Forty Minutes After Uterine Rupture. M. R. Robinson, New York.—p. 399.
Carcinoma of Body of Uterus in Childhood. J. B. Gilbert, Schenectady, N. Y.—p. 402.
Cancer Prophylaxis. Catharine Macfarlane and Martha Elizabeth Howe, Philadelphia.—p. 406.
Closure of Small Vesicovaginal and Rectovaginal Fistulas by Means of Diathermy and Monopolar Current. R. T. Frank, New York.—p. 411.
Report of Additional Case of Puerperal Septicemia Due to Infection by Clostridium Welchii. P. W. Toombs, Memphis, Tenn.—p. 415.
Postoperative Separation of Cesarean Section Wound, with Subsequent Abdominal Pregnancy: Report of Four Cases. E. L. King, New Orleans.—p. 421.
Laceration of Female Urethra with Complete Incontinence, Method of Repair Restoring Function. W. T. Kennedy, New York.—p. 425.
Full-Term Pregnancy in Uterus Bicornis, with Anterior Sacculation of Pregnant Horn. E. Eno, Shanghai, China.—p. 430.
Pregnancy in Interposed Uterus. R. A. Hurd, New York.—p. 433.
Puerperal Infection with Delayed Operation: Case. N. B. Sackett, New York.—p. 434.
Acute Intestinal Obstruction Complicating Late Pregnancy. G. G. Bemis, New York.—p. 436.
Congenital Vulvovaginal Anus: Report of Case. R. K. Packard and J. D. Kirshbaum, Chicago.—p. 437.

Uterine Allergy.—Rowe reports five cases of uterine allergy which he treated by eliminating from the patients' diets food causing allergic reactions. He observed that painful, irregular, scanty or profuse menstruation may be due to food allergy. Such menstrual disturbances may be associated with severe nausea, vomiting, acidosis, migraine, headaches or other allergic disturbances; it also may cause abnormal uterine bleeding and leukorrhea. Edema of the tubes, vagina or labia and excoriation and chafing of the labia and of the surrounding skin may arise from food sensitization.

Trichomonas Vaginalis.—Stein and Cope found that no specific or altered bacterial flora were responsible for the purulent vaginitis in their group of women with Trichomonas vaginalis infection. Direct smear examination, verified by cultures, revealed the presence of yeasts in only six of their fifty-nine patients. One of these had Trichomonas vaginalis vaginitis; another had a previous history of trichomonas, but she was apparently cured; two had Trichomonas vaginalis vaginitis complicating pregnancy; and one, who showed no evidence of trichomonas infection, had a profuse leukorrhea. The same organisms were found associated with the trichomonas as are found in health and in ordinary leukorrhea. Gonococci were not found associated with trichomonas in any of their patients. Many of the control group suffered from chronic endocervicitis which may have been caused originally by gonorrhea, but in these the authors failed to find trichomonas. Trichomonas vaginalis vaginitis, however, frequently follows a gonorrheal infection. The presence of Trichomonas vaginalis in large numbers in the vagina accompanied by a purulent discharge is responsible for the distressing symptom complex recognized as Trichomonas vaginalis vaginitis. Trichomonas vaginalis is pathogenic for human beings under certain clinical conditions.

Fetal Mortality as Affected by Duration of Labor.—Peckham made an analysis of the effect of the duration of labor on fetal mortality in a series of 13,658 consecutive deliveries at or near term. In both the white and the Negro race a precipitate labor (under three hours) is associated with an increased risk to the child. After this period, little change is noted in fetal mortality in the white race until the twenty-four hour duration is reached, after which it rises proportionately to the increase in length of labor. A similar rise is noticed among the Negroes but begins when the duration exceeds twelve hours. The fetal mortality rate is higher in the Negro than in the white race, regardless of duration of labor, and the Negro infant tolerates prolonged labor correspondingly less well. Operative delivery is accompanied by a higher fetal mortality, and when such delivery follows prolonged labor the mortality curve rises still more abruptly than if spontaneous termination occurred. Likewise, operative delivery is tolerated by the Negro infant correspondingly less well than by the white infant. The fetal mortality rate is much higher when labor is complicated by a contracted pelvis. In such cases the fetus tolerates operative delivery and prolonged labor poorly. A combination of these three factors results in fetal mortality rates of 24.68 and 40.52 per cent in the white and the Negro race, respectively.

Archives of Internal Medicine, Chicago

50: 351-510 (Sept.) 1932

Urea Clearance Test as Index of Renal Function: I. Studies of Normal Subjects. M. Bruger and H. O. Mosenthal, New York.—p. 351.
Id.: II. Effect of Ingestion of Carbohydrate (Dextrose). M. Bruger and H. O. Mosenthal, New York.—p. 358.
Dietary Practices in Relation to Incidence of Pellagra: I. Study of Family Dietaries in Leon County, Florida. Margaret R. Sandels and Eunice Grady, Tallahassee, Fla.—p. 362.
Undulant Fever: Epidemic of Subclinical Infection with Brucella. P. Dooley, Kent, Conn.—p. 373.
*Low Voltage in Electrocardiogram: Occurrence and Clinical Significance. K. B. Turner, New York.—p. 380.
*Treatment of Addison's Disease with Cortin (Hartman): Report of Four Cases. P. C. Baird, Jr., and F. Albright, Boston.—p. 394.
Pericarditis: IV. Fibrinous Pericarditis and "Soldier's Patches." H. L. Smith and F. A. Willius, Rochester, Minn.—p. 410.
Id.: V. Terminal Pericarditis. H. L. Smith and F. A. Willius, Rochester, Minn.—p. 415.
*Sedimentation Rate of Blood Corpuscles in Synovial Fluid and Plasma: Method of Estimation and Significance in Arthritis. D. H. Kling, New York.—p. 419.
Clinical Significance of Electrocardiograms with Large Q Waves in Lead III. T. Ziskin, Minneapolis.—p. 435.
Production of Nonfatal Vascular Sclerosis in Rabbits by Means of Viosterol (Irradiated Ergosterol). T. D. Spies, Boston.—p. 443.
*Transient Ventricular Fibrillation: Clinical and Electrocardiographic Manifestations of Syncopal Seizures in Patient with Auriculoventricular Dissociation. S. P. Schwartz and A. Jezer, New York.—p. 450.
Localization of Afferent Visceral Impulses in Spinal Cord. D. Davis, E. U. Goode and Soma Weiss, Boston.—p. 470.
*Diuretic Effects and Changes in Blood and Urinary Metabolites After Digitalis in Normal and in Edematous Persons. A. B. Stockton, San Francisco.—p. 480.
Experimental Edema Produced by Plasma Protein Depletion. M. J. Lepore, with technical assistance of Augusta B. McCoord, Rochester, N. Y.—p. 488.

Low Voltage in Electrocardiogram.—The records of 164 patients who have shown low voltage in their electrocardiograms were analyzed by Turner, of which 113 patients had manifest heart disease. In the remaining fifty-one cases without apparent cardiac involvement, a variety of diseases was present. In the group with heart disease, low voltage appeared to be related to the presence of congestive failure in sixty-three cases, but congestive failure was absent in forty-three cases, and seven cases could not be classified. In the group of patients without heart disease, an abnormal accumulation of fluid was present in thirty-nine cases and absent in twelve cases. The significance of low voltage in patients without obvious

heart disease is not clear. The author suggests that its occurrence in pneumonia is of serious prognostic import. In patients with heart disease, low voltage appears to be of considerable prognostic significance. In comparison with a control group, the mortality was greater within a shorter period of observation in the low voltage group. This was true regardless of age, type of heart disease, presence or absence of congestive failure and presence or absence of other electrocardiographic abnormalities.

Treatment of Addison's Disease with Cortin.—Baird and Albright treated four patients with Addison's disease with cortin (Hartman's extract). Of these, three were in all likelihood suffering from tuberculosis of the suprarenals and one from primary atrophy of the suprarenal cortex. All the patients were benefited by the treatment. A scientific evaluation of the efficacy of treatment is curtailed by the absence of a chemical or physical variable that fluctuates proportionately to the degree of suprarenal insufficiency and that can be accurately measured. The clinical evaluation of the efficacy of treatment rests chiefly on the following factors: (1) disappearance of nausea and vomiting, (2) restoration of appetite, (3) increase in strength and a feeling of well being and (4) prevention of death in acute suprarenal insufficiency. In one patient with acute suprarenal insufficiency in a moribund condition, the administration of cortin alone produced a dramatic result. The nonprotein nitrogen of the blood was reduced to normal, and the blood sugar was elevated to normal, concomitant with treatment. The effect of cortin on ergographic tracings, blood pressure, pigmentation, blood cholesterol, blood nonprotein nitrogen, blood creatinine, blood sugar, urinary excretion of creatine and creatinine, the basal metabolic rate and electrocardiographic tracings are discussed by the authors. None of these possible variables have been found of value in following the fluctuations in the degree of suprarenal insufficiency. The tendency to subnormal temperature was decreased by treatment with cortin. It was further noted that three acute episodes of suprarenal insufficiency were ushered in by subnormal temperatures. The subnormal temperatures may have been the cause or the result of the insufficiency. Cortin has proved of the most value in the treatment of patients who are in a prostrate and moribund condition. Thus in the clinic as in the laboratory the best measuring stick of its efficacy remains the test of life or death.

Sedimentation Rate of Blood Corpuscles.—A method for the comparative estimation of the sedimentation rate of blood corpuscles in synovial fluid and plasma was developed by Kling by replacing the plasma with equal volumes of fluid. The ratio of sedimentation of blood corpuscles in synovial fluid and plasma after one hour was found to be significant and can be expressed by the comparative sedimentation index. On the basis of his study of sixty-one cases of arthritis by this method, the author draws the following conclusions: 1. The severity of an infection of the joint is indicated by the sedimentation curve in the synovial fluid; the general reaction is reflected in the blood curve. 2. In acute infectious polyarthritis, the comparative sedimentation index is useful in the determination of the part played by the aspirated joint within the general process. 3. In monarticular arthritis, a high increase in the blood sedimentation and a low sedimentation rate in the synovial fluid indicate foci of infection outside the joint as responsible for the increase in the sedimentation in the blood. A simultaneous determination of the sedimentation and the viscosity is helpful in differentiating the type of involvement of the joint. Noninflammatory fluids with a low protein content have a low comparative sedimentation index and a low viscosity. This is the case in transudates. On the other hand, fluids with a high content of mucin show a low comparative sedimentation index but a high viscosity. The differentiation of infectious from degenerative types of chronic arthritis by the sedimentation of the blood alone is not possible. The nature of the underlying process can, however, be more accurately discovered by the comparative sedimentation and the viscosity of the effusion.

Transient Ventricular Fibrillation.—Schwartz and Jezer made a clinical and electrocardiographic study of the syncopal seizures in a patient with auriculoventricular dissociation. Electrocardiograms obtained during such seizures revealed the cardiac mechanism to be due to transient ventricular fibrillation. The natural periods of transient ventricular fibrillation in their patient varied in duration from only a few seconds to six minutes. As many as 207 attacks of unconsciousness were observed during a period of twenty-four hours with spontaneous revival. During a period of four months' observation, at least one attack occurred each day. The premonitory periods preceding a transient seizure of ventricular fibrillation of the ventricles were variable. These were followed shortly by irregular periods of recurring groups of aberrant ventricular oscillations. Pallor of the face and momentary loss of consciousness followed the appearance of these recurrent groups of ventricular oscillations. During their presence, the pulse disappeared for more than eight seconds but not for more than twelve. A major attack of unconsciousness with cyanosis, stertorous breathing and convulsions took place when the heart sounds and pulse disappeared for at least twenty but not less than forty seconds. The frequency of the ventricular oscillations during the periods of transient ventricular fibrillation varied from 250 to 500 a minute. Spontaneous revival from a seizure of ventricular fibrillation was ushered in by the appearance of a postundulatory pause, which was followed by an intermediary idioventricular rhythm, with an increasingly irregular rate before the restoration of the basic ventricular rhythm. The authors believe that syncopal seizures in patients with auriculoventricular dissociation are much more commonly associated with transient periods of ventricular fibrillation than has been heretofore believed. Rational therapy for the prevention of syncopal seizures in patients with auriculoventricular dissociation depends on an intimate knowledge of the cardiac mechanism underlying these seizures.

Diuretic Effects After Digitalis in Normal and in Edematous Persons.—In a study of three normal subjects, four patients with cardiac decompensation without edema, four with cardiac decompensation with edema and one with cirrhosis and pitting edema of the legs and back, Stockton found that the diuretic action of digitalis is variable and is practically limited to patients with edema of cardiac origin. The diuretic action in human subjects is accompanied by increases in the chloride and uric acid of the urine, and simultaneous decreases in the chloride and uric acid of the blood. In patients not showing increased diuresis, the metabolites of the blood and urine are unchanged or decreased. Accordingly, the changes in these metabolites of the blood and urine following digitalis medication are mediated differently from those of the metallic and purine types of diuretics; there is a washing-out effect in the kidneys as the result of improvement in general circulation, which increases renal filtration. On the other hand, the diuresis of metallic and purine diuretics is characterized by simultaneous increases in the chlorides of the blood and urine, an action which is mediated, in part at least, by a direct tissue action of these diuretics and results in a mobilization of the chlorides of the tissues. The effect on metabolites in normal and edematous subjects is the same.

Archives of Neurology and Psychiatry, Chicago

28: 483-756 (Sept.) 1932

Effects of Lesions in Red Nuclei in Cats. W. R. Ingram and S. W. Ranson, Chicago.—p. 483.
Results of Stimulation of Tegmentum with Horsley-Clarke Stereotaxic Apparatus. W. R. Ingram, S. W. Ranson, F. I. Hannett, F. R. Zeiss and E. H. Terwilliger, Chicago.—p. 513.
Relation of Cerebrum to Cerebellum: I. Cerebellar Tremor in Cat and Its Absence After Removal of Cerebral Hemispheres. J. F. Fulton, New Haven, Conn.; E. G. T. Liddell, Oxford, England, and D. M. Rioch, Boston.—p. 542.
*Effect of Hyperventilation on Excitability of Motor Cortex in Cats: Experimental Study. B. S. Brody and J. G. D. de Barenne, New Haven, Conn.—p. 571.
Relation of Modifications of Muscle Tonus to Interruption of Certain Anatomic Pathways. L. J. Pollock and L. Davis, Chicago.—p. 586.
Quantitative Studies on Human Muscle Tonus: II. Analysis of Eighty-Two Normal and Pathologic Cases. N. J. Berkwitz, Minneapolis.—p. 603.
Effect of Laughter on Muscle Tone. H. A. Paskind, Chicago.—p. 623.
Relation of Static and Kinetic Systems to Muscle Tone. J. R. Hunt, New York.—p. 629.
Some Postural Reflexes in Man. J. A. Luhan, Chicago.—p. 649.

Effect of Hyperventilation on Excitability of Motor Cortex.—Brody and de Barenne present the results of an investigation on the excitability of the cerebral cortex in the cat before, during and after hyperventilation, under uniform experimental conditions. The results they obtained are as fol-

lows: 1. Hyperventilation alone results, in 62 per cent of the cases, in a slight augmentation of the cortical responses; in 38 per cent the excitability does not change. 2. After the injection of a small nonconvulsant dose of strychnine (0.001 Gm. per kilogram of body weight) the effect of hyperventilation is much more marked, as not only is the augmentation of the cortical responses greater but there appear shortening of the latency, epileptoid after-discharges and spread to muscle groups in other parts of the body. This strong augmentation is a constant phenomenon and occurs even with liminal stimuli. 3. The same augmentation is constantly observed when hyperventilation is combined with local strychninization of a small area of the cortex at and immediately around the focus of cortical stimulation. 4. Although the experimental conditions in their experiments may be looked on as constant (depth of anesthesia, conditions of the cortex, temperature of the animal and strength and duration of electrical stimulation) the excitability of the cortex shows slight "wavelike" fluctuations. These waves are looked on as the expression of intrinsic fluctuations of cortical activity. 5. Under hyperventilation these "waves" disappear. 6. After cessation of the hyperventilation, the excitability of the cortex is almost constantly depressed for the first four or five minutes, after which it returns to normal.

Archives of Ophthalmology, Chicago

8: 489-636 (Oct.) 1932

Vertical Limbal or Oblique Extralimbal Incision for Iridencleisis in Glaucoma: Efficiency of Iridectomies Before 1884. S. Holth, Oslo, Norway.—p. 489.
The Machek Operation for Ptosis. S. R. Gifford, Chicago.—p. 495.
Chorioretinitis Juxtapapillaris (Jensen): First Histologic Report. S. V. Abraham, Los Angeles.—p. 503.
Germicidal Effect of Ultraviolet Rays on Virus of Herpes: Experimental Studies. T. Gundersen, Boston.—p. 519.
Monocular Movements. A. Duane, New York.—p. 530.
Iris Inclusion Operation in Eye of Rabbit: Histologic Study. E. B. Spaeth, Philadelphia.—p. 550.
Development of Human Cornea.. B. Rones, Baltimore.—p. 568.

Archives of Otolaryngology, Chicago

16: 469-602 (Oct.) 1932

*Leprosy of the Ear, Nose and Throat: Observations on More than Two Hundred Cases in Hawaii. F. J. Pinkerton, Honolulu, T. H.—p. 469.
Anatomic Relation of Sphenoid Sinus to Dorello's Canal: Abducens Paralysis. K. M. Houser, Philadelphia.—p. 488.
*Lingual Goiter. E. F. Ziegelman, San Francisco.—p. 496.
Use of Dermal Graft in Repair of Small Saddle Defects of Nose. C. R. Straatsma, New York.—p. 506.
Some Nasal Deformities and Their Correction. S. Salinger, Chicago. —p. 510.
Oxygen Tent in Postbronchoscopic Care of Children. V. K. Hart and S. W. Davis, Charlotte, N. C.—p. 526.
Ethmosphenoidal Cells with Agenesis of Sphenoidal Sinus. P. P. Riggle, Philadelphia.—p. 532.
Diverticula of Larynx. K. S. Chouke, Denver.—p. 538.
Clinical Problems of Rhinology. G. E. Shambaugh, Chicago.—p. 544.
*Problem of Failure in Present-Day Management of Hay Fever: Importance of Extrapollen Hypersensitivity in Treatment. H. H. Gelfand, New York.—p. 550.
*Effects of Radiation on Allergic Nasal Mucosa. L. B. Bernheimer and M. Cutler, Chicago.—p. 561.

Leprosy of Ear, Nose and Throat.—On the basis of a study of more than 200 cases of leprosy, Pinkerton believes that knowledge of leprous lesions of the eye, ear, nose and throat is essential in the diagnosis and treatment of leprosy. Patient and painstaking examination of the nasal mucous membrane is most important, as from 87 to 90 per cent of his earlier cases showed positive bacteriologic observations in the nose. Repeated and frequent examinations of the lobe of the ear show similar positive observations in a large number of cases. Hygienic attention to the nose and mouth is gratifying to the patient, but improvement of the leprous nasal lesion depends greatly on improvement of the systemic infection. The advanced asylum type of case is of spectacular and academic interest; but, if leprosy is ever to be brought under control, one must investigate child contacts, bring them under immediate treatment and segregate them to protect others, especially other children, because of their susceptibility.

Lingual Goiter.—Ziegelman gives a detailed report of a definitely proved case of lingual goiter. The tumor was removed because of a disturbance in swallowing. Lingual goiter is a rare pathologic lesion. It may be stimulated to increased growth at the time of the menopause. Surgical removal by way of the mouth is the method of choice. If postoperative myxedema occurs, it may be controlled by thyroid extract. By observation and inspection of the posterior portion of the tongue in the modified Rose position, one can determine the lesion in cases prior to the onset of symptoms.

Failure in Management of Hay Fever.—Gelfand believes that the classification of subjects with hay fever as to the degree of sensitivity, according to Vander Veer and Cooke, is most important for the purpose of obtaining ultimate good results in treatment. This procedure assures the attainment of adequate dosage for the various classes of subjects with hay fever, which is so essential to good results. Certain essential maxims to follow in treatment are avoidance of overtreatment, preseasonal combined with coseasonal treatment, correct diagnosis and determination of proper species of pollen, adequate dosage, and consideration of an extrapollen factor. Classification of the patient is not alone a sufficient guaranty for good results. In addition, each patient must be followed up individually and treatment modified according to individual needs. Clinical experience in allergy will guide the allergist in meeting the particular needs of each patient. The author stresses the need for bearing in mind the presence of sensitivity to allied allergens in patients with seasonal hay fever. Such nonpollen hypersensitivity may interfere greatly with the attainment of successful results in treatment unless considered from the therapeutic standpoint.

Allergic Nasal Mucosa.—The clinical and microscopic effects of radiation on the allergic nasal mucosa have been studied by Bernheimer and Cutler in forty patients suffering from vasomotor rhinitis. The primary results in their group of patients were uniformly excellent with regard to relief of symptoms, but sufficient time has not elapsed for them to be certain of the permanence of these effects. They present their study as an interesting observation of the clinical and pathologic effects of irradiation on the allergic mucosa but not as conclusive evidence that irradiation is a cure for vasomotor rhinitis. Their observations suggest therapeutic possibilities and further studies are in progress in an effort to evaluate the scope of this method of treatment. They have a series of cases of seasonal hay fever under investigation in order to study the effects of radiation on this disease.

Georgia Medical Association Journal, Atlanta

21: 335-377 (Sept.) 1932

Symposium on Sinus Disease: Relation of Diseases of Nasal Accessory Sinuses to Systemic Derangements. W. Mithoefer, Cincinnati.—p. 335.
Id.: Symptoms and Diagnosis of Sinusitis. F. B. Blackmar, Columbus. —p. 341.
Id.: Complications of Sinus Disease. W. O. Martin, Jr., Atlanta.—p. 346.
Id.: Treatment of Sinusitis. C. McDougall, Atlanta.—p. 348.
Id.: Histobacteriologic Study of Sputums. J. C. Norris and Alice L. Garretson, Atlanta.—p. 354.
Vitamin Therapy. D. H. Garrison, Tate.—p. 358.

Iowa State Medical Society Journal, Des Moines

22: 477-524 (Oct.) 1932

Present Day Knowledge of Blood Cell Formation and Pathology. H. Downey, Minneapolis.—p. 477.
*Indications for Splenectomy. A. A. Eggleston, Burlington.—p. 486.
Significance of Blood Findings in Surgical Conditions. C. A. Hill, Council Bluffs.—p. 489.
Earlier Diagnosis of Carcinoma of Stomach. J. F. Weir, Rochester, Minn.—p. 496.
Three Months Pregnant Uterus Successfully Visualized. J. J. Duffy, Denison.—p. 500.
Physicians or Fossils? R. M. Sorensen, Cumberland.—p. 501.
Addison's Disease: Case Report Showing Effect of Cortin. W. A. Boice, Chicago.—p. 504.

Indications for Splenectomy.—Eggleston states that the conditions requiring splenectomy are anomalies of position, injuries, abscesses, cysts, new growths, specific infections such as syphilis, tuberculosis and malaria, and diseases of the blood and of the reticulo-endothelial system in which the spleen, being enlarged, appears to exert a controlling or causative influence. The decisive factor in the decision for or against splenectomy in any given case will be the complete blood picture, the stage of the disease and the condition of the patient, rather than the splenic enlargement. The introduction of the method of vital staining of blood smears and the counting of reticulated corpuscles or the so-called reticulocytes have become of great importance in the selection of cases. Splenectomy

gives great improvement and often a clinical cure in splenic anemia, hemolytic jaundice and chronic purpura hemorrhagica. Splenectomy in the first stage of splenic anemia is not only accompanied by a lower mortality but in the majority of cases has caused great and lasting improvement in symptoms, often amounting to a complete cure. Even when the operation is done during the terminal stages in the presence of ascites and shrinkage of the liver, splenectomy, if combined with omentopexy, may produce a speedy return to a fair degree of health and give a prolongation of life and freedom from symptoms for several years. Hemolytic jaundice is the disease in which splenectomy has had its greatest success. There are two types of this disease, the familial or congenital and the acquired. Sometimes it is difficult to classify the particular individual case on hand, but from a practical point of view it is of no great significance, for splenectomy is of equal efficacy in the two types. Chronic purpura hemorrhagica has lately been successfully treated by excision of the spleen. The striking feature of this disease is a marked reduction or absence of blood platelets. It is known that removal of the spleen always leads to an increase in the blood platelet count; therefore splenectomy seemed a rational line of treatment and the results obtained have been striking.

Johns Hopkins Hospital Bulletin, Baltimore

51: 117-183 (Sept.) 1932

Nervous Manifestations in Infantile Scurvy. O. R. Langworthy, Baltimore.—p. 117.
*Calcified Cysts of Kidney. J. A. C. Colston, Baltimore.—p. 125.
Monocytic Leukemia. P. W. Clough, Baltimore.—p. 148.

Calcified Cysts of Kidney.—Colston presents a series of six calcified cysts that proved to be in intimate relation to the kidney. In each case an antecedent history of severe injury is given so that there can be little doubt that trauma was the etiologic factor in the causation of these cysts. According to the author the perirenal hematoma, of varying extent, that is formed by any injury that tears through the capsule of the kidney into its substance represents the early stage of a calcified cyst. Such a hematoma may be either completely absorbed or, if it is of any extent, it is more probable that the calcium salts that are present in the extravasated blood and urine will be precipitated in the wall. When the cyst has become calcified, the wall is found to consist of fibrous tissue with irregular areas of calcification without epithelial lining. In simple serous cysts a definite epithelial lining can often be found so that, if definite traces of epithelium are found in the wall, it may be assumed that such a cyst has resulted from hemorrhage into a preexistent simple serous cyst. The diagnosis of calcified cyst is usually made by plain roentgenograms. On account of technical difficulties due to adherence of the cyst to neighboring viscera, no attempt at complete excision should be made unless the symptoms are definite and pronounced. When the symptoms are of sufficient degree to demand intervention, operation should consist in exposure of the kidney and the adherent cyst and if, as is usually the case, it becomes evident that complete excision of the cyst is impossible, operation should be limited to excision of as much of its wall as can be safely removed and to marsupialization of the remaining portion of the cyst with the institution of free drainage. The prophylaxis of calcified cyst lies in the early recognition and evacuation of any extensive perirenal hematoma.

Journal of Biological Chemistry, Baltimore

97: 605-825 (Sept.) 1932. Partial Index

Chemistry of Lipids of Tubercle Bacilli: XXVII. Composition of Phosphatide Fraction of Bacillus Leprae. R. J. Anderson and N. Uyei, New Haven, Conn.—p. 617.
Id.: XXVIII. Studies on Phthioic Acid: Isolation of Levorotatory Acid from Phthioic Acid Fraction of Human Tubercle Bacillus. R. J. Anderson, New Haven, Conn.—p. 639.
Directive Influences in Biologic Systems: II. Lipase Actions of Types I and II Pneumococci. K. G. Falk and Grace McGuire, New York.—p. 651.
Relationships Between Activation of Pancreatic Lipase and Surface Effects of Compounds Involved: Mechanism of Inhibition and Activation. D. Glick and C. G. King, Pittsburgh.—p. 675.
Distribution of Glucose in Human Blood. E. M. MacKay, La Jolla, Calif.—p. 685.
Total Nitrogen of Blood Plasma of Normal Albino Rats at Different Ages. Pearl P. Swanson and A. H. Smith, New Haven, Conn.—p. 745.

Journal of General Physiology, Baltimore

16: 1-163 (Sept. 20) 1932

Electrokinetic Phenomena: IX. Electrophoresis and Electro-Osmosis. H. A. Abramson, Boston.—p. 1.
Studies in Respirometry: I. Combined Gas Burette-Interferometer Respirometer. W. R. Thompson, New Haven, Conn.—p. 5.
Id.: II. Influence of Infra-Red Radiation on Carbon Dioxide Respiration of Drosophila Imagos in Dry Air. W. R. Thompson and R. Tennant, New Haven, Conn.—p. 23.
Id.: III. Application of Refractovolumetric Respirometry to Observation of Continuous Respiratory Changes in Wet or Dry Systems. W. R. Thompson and R. Tennant, New Haven, Conn.—p. 27.
Crystalline Pepsin: IV. Hydrolysis and Inactivation by Acid. J. H. Northrop.—p. 33.
Pepsin Activity Units and Methods for Determining Peptic Activity. J. H. Northrop.—p. 41.
Estimation of Pepsin with Hemoglobin. M. L. Anson and A. E. Mirsky.—p. 59.
Temperature Characteristic for Anaerobic Production of CO_2 by Germinating Seeds of Lupinus Albus. P.-S. Tang.—p. 65.
Dark Adaptation and Dark Growth Response of Phycomyces. E. S. Castle.—p. 75.
Pulsation Frequency of Advisceral and Abvisceral Heart Beats of Ciona Intestinalis in Relation to Temperature. E. Wolf.—p. 89.
Mechanisms of Tropistic Reactions and Strychnine Effect in Daphnia. G. L. Clarke and E. Wolf.—p. 99.
Osmotic Relationships in Hen's Egg, as Determined by Colligative Properties of Yolk and White. Evelyn Howard.—p. 107.
Automatic Recording of Movements of Plant Organs. A. E. Navez and T. W. Robinson.—p. 125.
Geotropic Curvature of Avena Coleoptiles. A. E. Navez and T. W. Robinson.—p. 133.
Protoplasmic Potentials in Halicystis: II. Effects of Potassium on Two Species with Different Saps. L. R. Blinks.—p. 147.
Kinetics of Penetration: IV. Diffusion Against Growing Potential Gradient in Models. W. J. V. Osterhout.—p. 157.

Journal of Infectious Diseases, Chicago

51: 191-381 (Sept.-Oct.) 1932

Identity of Bacillus Subtilis, Cohn 1872. M. H. Soule, Ann Arbor, Mich.—p. 191.
Staphylococcus Aureus: Dissociation and Its Relation to Infection and to Immunity. Rachel E. Hoffstadt and G. P. Youmans, Seattle.—p. 216.
*Botulinus Toxin: VI. Destruction of Botulinus Toxin by Heat. H. Sommer and Elizabeth Wagner Sommer, San Francisco.—p. 243.
Pneumonia in Children. Maud L. Menten, Sadie F. Bailey and Frances M. DeBone, Pittsburgh.—p. 254.
Serologic Characteristics of Shigella Equirulis (B. Nephritidis-Equi). P. R. Edwards, Lexington, Ky.—p. 268.
Fermentation Studies on Lactobacillus Acidophilus and Lactobacillus Bulgaricus. R. H. Weaver, Lexington, Ky.—p. 273.
Induction of Avirulence in Pasteurella Tularensis. L. Foshay, Cincinnati.—p. 280.
*Tularemia: Accurate and Earlier Diagnosis by Means of Intradermal Reaction. L. Foshay, Cincinnati.—p. 286.
Experimental and Natural Streptococcus Hemolyticus Infection of Udder of Cow. E. S. Robinson and J. A. McComb, Boston.—p. 292.
Growth of Clostridium Botulinum on Casein Hydrolysate and on Hydrolysate Preparations. W. Burrows, Chicago.—p. 298.
Bactericidal Action of Phenyl-Mercury-Nitrate: Further Observations. L. A. Weed and E. E. Ecker, Cleveland.—p. 309.
*Immunologic Studies on Tularemia in Rabbits. Cornelia M. Downs, Lawrence, Kan.—p. 315.
Determination of Lo and L+ Dose of Botulinus Toxin by Complement Fixation. Sarah E. Stewart, Fort Collins, Colo.—p. 324.
Types of Clostridium Welchii Found in Dysentery of Lambs. H. Marsh, E. A. Tunnicliff and E. Jungherr, Bozeman, Mont.—p. 330.
*Blood Cultures of Apparently Healthy Persons. A. F. Reith and T. L. Squier, Milwaukee.—p. 336.
Metabolism Studies on Brucella Group: VIII. Nutrient Requirements in Synthetic Mediums. C. E. ZoBell and K. F. Meyer, San Francisco.—p. 344.
Id.: IX. Physiochemical Requirements in Synthetic Mediums. C. E. ZoBell and K. F. Meyer, San Francisco.—p. 361.

Botulinus Toxin.—According to the experiments of the Sommers, toxins prepared by adsorption on aluminum hydroxide and by separation of Clostridium botulinum are most stable to heat at p_H 5. Purified preparations that involve acid precipitation and contain the protein with the iso-electric point of p_H 4.4 are equally resistant at p_H 4.4 and 5. The p_H optimum for the stability of purified toxins dissolved in a solution of amino-acid mixture or of cured toxin filtrates is not well defined. A sharp p_H optimum at 5 is one criterion for the purity of toxin preparations. Aminoids and milk do not retard the thermal destruction of the poison at p_H 5. Buffer solutions containing trivalent anions enhance the thermal inactivation at p_H 5 and 7. Divalent cations are without influence. The velocity of thermal destruction varies greatly in different fruit and vegetable juices of the same p_H value. After four hours at 68 C., 1 per cent of the toxin may still be present.

Toluene or chloroform dissolved in the buffer solutions has little influence; an excess of the solvents greatly increases the rate of destruction of the poison. At 68 C., type A toxins of Clostridium botulinum follow more or less a dimolecular rate of destruction, while the inactivation of type C toxins is more nearly expressed by a monomolecular reaction. Purified toxins in dilute solutions may follow closely the theoretical rates of destruction. The rate of destruction increases approximately ten times if the temperature is raised 10 degrees C. Purification of the toxins does not improve their thermal stability.

Tularemia.—Foshay states that the intradermal test is the earliest available diagnostic aid for determining the presence of tularemia. Positive reactions have occurred as early as the fourth day of illness; i. e., about a week before agglutinins usually appear in the blood. The test is useful at any time during the first year following infection. The allergic skin response is specific and reliable. Positive reactions are constant in the presence of tularemia but do not occur in normal persons or in the presence of certain other acute infections. The positive reaction becomes negative as a result of artificial desensitization. This change appears to coincide with and to depend on the induction of the adequate immunity. The method used to desensitize has not produced a subsequent state of resensitization during the next succeeding seven months. The author presents further proof that chemical detoxification of bacterial bodies can be carried to a reasonably satisfactory degree without noticeably impairing their antigenic properties. Natural desensitization in tularemia has not been noted during the first year following infection. Daily subcutaneous injections of detoxified vaccine shortened the course of the disease in three cases; however, this does not seem at present to be an ideal form of treatment.

Tularemia in Rabbits.—The results of Downs' experiments on rabbits show that immunization with formaldehydized cultures of Pasteurella tularensis is much superior to that obtained with heat killed cultures. In the treated animals, full immunity developed rather slowly, as shown by the longer survival of the immunized animals infected several weeks after the last immunizing dose. Although 75 per cent of the immunized animals could be infected with living, virulent Pasteurella tularensis, a fairly solid resistance had developed, as judged by the more chronic course of the disease. Francis summed up the human lesions as a reaction that is definitely one of leukocytic response, the most marked increase being that of the epithelioid cells. There is little evidence of fibrous increase in the early lesions. Lesions in the less resistant laboratory animals resemble the early lesions in man, but the reaction is more intense. He also stated that in animals thus far used fibrous lesions have not developed. The author's results show that artificial immunization in rabbits has changed the course of the infection and the type of lesions produced so that it more nearly resembled the fibrous lesions seen in man. The lesions in immunized animals resemble those of subacute tularemia in man to such an extent as to suggest that the same protective agency operates in the natural immunity in man and in the artificial immunity produced by formaldehydized cultures in rabbits. The author suggests that the success of immunization with formaldehydized cultures in rabbits might make it worth while to try similar methods of immunization in man as a preventive against infection.

Blood Cultures of Healthy Persons.—Cultures of samples of blood were taken by Reith and Squier from 293 apparently healthy persons. Cultures containing streptococci, diplococci, diphtheroids, M. catarrhalis, colon bacilli and obligatory anaerobic rods were considered positive. Positive cultures were obtained from fifty-three, or 27 per cent, of 194 persons who had chronic focal infection, while positive cultures were obtained from only 12 per cent of ninety-nine persons who had no demonstrable focus of infection. Pain in joints or muscles, including chronic infectious arthritis diagnosed clinically in seven, was present in twenty-four. Ten, or 42 per cent, of these gave blood cultures positive for streptococci or diplococci. A seasonal variation in the incidence of positive blood cultures from persons without demonstrable foci of infection suggests that acute respiratory infections may be responsible for some of the positive cultures.

Journal of Pharmacology & Exper. Therap., Baltimore

46: 131-250 (Oct.) 1932

Preanesthetic Value of Scopolamine and Mixtures of Scopolamine and Morphine in Relation to Nitrous Oxide Anesthesia in Rat. O. W. Barlow.—p. 131.
Premedication Values of Morphine, Codeine, Papaverine, Narcotine and Pantopon in Relation to Nitrous Oxide Anesthesia. O. W. Barlow and M. F. Stormont.—p. 141.
Action of Certain Derivatives of Choline. A. Simonart.—p. 157.
Effect of Repeated Doses of Cocaine on Dog. A. W. Downs and N. B. Eddy, Edmonton, Alta., Canada.—p. 195.
Effect of Repeated Doses of Cocaine on Rat. A. W. Downs and N. B. Eddy, Edmonton, Alta., Canada.—p. 199.
Studies of Chronic Morphine Poisoning in Dogs: IV. Excretion of Morphine in Tolerant and Nontolerant Animals. I. H. Pierce and O. H. Plant. Iowa City.—p. 201.
Biologic Assay of Digitalis and Strophanthus. C. W. Chapman and C. A. Morrell.—p. 229.

Missouri State Medical Assn. Journal, St. Louis

29: 397-442 (Sept.) 1932

Retrospect of Eighty-Three Years, Celebrating the Seventy-Fifth Annual Session of the Missouri State Medical Association. J. Grindon, St. Louis.—p. 397.
Report of Nontuberculous Patients Discharged from Missouri State Sanatorium, Jan. 1, 1927, to Dec. 31, 1931. E. E. Glenn, Mount Vernon.—p. 400.
Correction of Vesical Neck Obstructions by Means of Resectoscope. N. F. Ockerblad, Kansas City.—p. 411.
Insulin as an Appetizer. O. S. Jones, St. Louis.—p. 416.
Diagnostic Features of Syphilis of Central Nervous System. Katherine Suyetoff, Nevada.—p. 417.
The Work of the Woman's Auxiliary. A. B. McGlothlan, St. Joseph. —p. 424.

New England Journal of Medicine, Boston

207: 595-636 (Oct. 6) 1932

*Primary Chronic Splenomegaly: Banti's Disease. B. M. Fried, New York.—p. 595.
*Results and Interpretation of Complement Fixation Test for Gonorrhea. C. S. Swan, Boston.—p. 601.
Diathermy Treatment of Acquired Balanitis, Phimosis and Paraphimosis. H. Neifeld, Brooklyn.—p. 603.
Health Education Demonstrations in Massachusetts High Schools. F. Kiernan, Boston.—p. 604.
Conduct of Normal Labor. B. P. Burpee, Manchester, N. H.—p. 607.
Anorexia Nervosa. F. E. Clow, Wolfeboro, N. H.—p. 613.
Progress in Anesthesia in 1931. R. F. Sheldon, Boston.—p. 620.

Primary Chronic Splenomegaly.—Fried reports in detail the case of a boy, aged 10, who showed a splenomegaly of unknown origin, a secondary anemia and hemorrhages of six years' duration. The postmortem examination revealed a large, fibrosed spleen, with the histologic traits characteristic of Banti's disease. There was no cirrhosis of the liver. He expresses the opinion that Banti's splenomegaly is probably a primary disease of the veins of the portal circulation, and particularly of those of the spleen (phlebosclerosis or phlebothrombosis of the vena splenica). The author discusses the possible etiology of this condition, outlines the difficulties encountered in the diagnosis of the disease, and states that it is essential to recognize and to treat the disease in its early stages.

Complement Fixation Test for Gonorrhea.—Swan briefly reviews a series of thirty-seven private patients with deep chronic genital infection and seven of cured acute gonorrhea on whom he used a complement fixation test for gonorrhea in the absence of any clinical demonstration of the gonococcus in an effort to establish a positive diagnosis. All the patients who could properly be considered nonspecific gave "negative" reactions. Some with a past history of gonorrhea gave a "negative," some a "doubtful," and some a "positive" reaction. In those who gave a "negative" reaction the gonococcus was never found. In all three of those who gave a "doubtful" reaction the gonococcus was subsequently found. In two of the eight who had "positive" reactions the gonococcus was subsequently found; in another it was finally found in the patient's sexual partner, and in a fourth, who had salpingitis, the gonococcus was found in the husband but not in the wife. The reaction was negative at the time of discharge from the treatment in all of the seven treated from the onset of their acute gonorrhea on whom the test was used. The author discusses the value of the test in certain cases in establishing a positive diagnosis, the pitfalls in the interpretation of a "positive" test, and the uselessness of a "negative" test alone.

New York State Journal of Medicine, New York

32: 1101-1162 (Oct. 1) 1932

*Further Experiences with Trichophytin. L. S. van Dyck, J. Kingsbury, B. Throne and C. N. Myers, New York.—p. 1101.
Rupture of Pregnant Uterus at Full Term: Report of Case. F. W. Lester, Seneca Falls.—p. 1108.
Effect of Noise on Nervous System: Plea for Official Action by This Society Toward Abatement of This Damaging Nuisance. L.-S. Archambault, Albany.—p. 1110.
Study of Primiparous Patients in Active Labor with Unengaged Heads. L. L. Mackenzie, New York.—p. 1116.
Ancient Hebrew Medicine. B. Cohen and W. C. Montgomery, Salem, Mass.—p. 1117.
Advantages of Using 16 Mm. Ciné-Kodak Supersensitive Panchromatic Film in Making Surgical Motion Pictures. R. P. Schwartz and H. B. Tuttle, Rochester.—p. 1121.
Electrodiagnosis, Galvanic and Low Frequency Currents in Traumatic Conditions. R. Kovacs, New York.—p. 1126.

32: 1163-1220 (Oct. 15) 1932

Some of the Problems Associated with Peptic Ulcer. E. S. Judd, Rochester, Minn.—p. 1163.
Prostatic Problem. F. J. Parmenter, Buffalo.—p. 1166.
Clinical Analysis of Prostatic Obstruction. D. M. Vickers and S. T. Fortuine, Cambridge.—p. 1170.
Treatment of Ambulatory Diabetic Patient. E. Tolstoi, New York.—p. 1173.
Head Injuries. H. H. Ritter, New York.—p. 1176.
Report of Two Hundred and Eighteen Completed Cases Seen at Westchester County Prenatal Clinic in 1931. M. Nicoll, Jr., and E. H. Marsh, White Plains.—p. 1180.
Some Notes on History of Medicine of Onondago County. L. J. Bragman, Syracuse.—p. 1185.
Treatment of Traumatic Rupture of Posterior Urethra. J. H. Powers and D. W. Smith, Cooperstown.—p. 1188.
Report of Occurrence of Gonococcic Vaginitis in the New-Born. E. J. Wynkoop and W. Pennock, Syracuse.—p. 1192.
Monocytoid Myeloblastic Leukemia: Case. C. Reich, New York.—p. 1193.

Trichophytin.—Further investigations on a second series of 217 cases presenting mycotic-like eruptions confirm van Dyck's and his associates' earlier observations that a positive trichophytin test might be obtained in this group of patients. From their observations it appears that the extract finds ready application in the differential diagnosis. Their observations are important in establishing the best mode of procedure in treating eruptions, which sometimes closely simulate symptoms due to other causes. Analysis of the therapeutic results indicated that with a small number of treatments satisfactory clinical observations are obtained. They emphasize the importance of regularity in treatment and also the necessity of maintaining the concentration adequate to produce a local reaction. Desensitization can follow only under these circumstances. Complicating skin eruptions must be treated on a separate basis. To do this the importance of a complete chemical examination of the blood is urged. Analysis of the clinical observations indicated that at least 30 per cent of the patients are apparently cured, 33 per cent greatly improved, 32 per cent slightly improved and 5 per cent unimproved. In the last group, the authors observed complicating eruptions. The average number of injections was twelve. Intradermal injections of from 0.1 to 0.2 cc. of trichophytin were used, beginning with a 1:10 or 1:50 dilution at four or five day intervals, in the flexor surface of the forearm. Stronger dilutions, such as 1:10, 1:5, 1:2 and 1:1, were given as soon as the previous injection failed to show a positive reaction on observation after forty-eight hours. For example, if an injection in a dilution of 1:10 gave a strongly positive reaction, the same dilution was used for successive treatments until it failed to produce the reaction. The same procedure was used for each of the other dilutions. It was rarely necessary to use the full strength trichophytin. Turbid solutions should not be used under any circumstances for the reason that they are bacterially contaminated or contain alcohol used to sterilize the needles. A follow up of the first series of patients showed that 93 per cent of those who returned are now free from clinical symptoms; 26 per cent had mild recurrences and ultimately cleared up with additional treatment. The average blood sugar for 200 cases was 108 mg. per hundred cubic centimeters of blood as compared to 90 mg. used as their normal value. The authors enumerate various manifestations of sensitization to fungi. Results of vaccinotherapy by subcutaneous injections of polymycotic vaccines are summarized from reports of other investigators. Mueller's explanation of intradermal therapy in general is discussed from the physiologic point of view. The authors attempt to explain the rationale of intradermal therapy as applied to mycotic infections of the skin, tuberculosis of the skin, sycosis vulgaris and occupational eczema.

Occupational Therapy and Rehabilitation, Baltimore

11: 339-402 (Oct.) 1932

Development of Division of Therapeutic Treatment by Occupation in New York State Hospitals. P. Smith, New York.—p. 339.
Occupational Therapy for Mental Defectives at Syracuse State School. Louise F. Tower, Syracuse, N. Y.—p. 353.
Care of the Veteran. H. E. Mock, Chicago.—p. 361.
Therapeutic Relationship of Interest to Effort. J. E. Davis, Perry Point, Md.—p. 367.
Address to Handicraft Club. R. Steiner.—p. 375.
Occupational Therapy for Children. Gladys Sellew, Chicago.—p. 379.
Say It with Music. B. A. Thompson, Fort Harrison, Mont.—p. 383.

Ohio State Medical Journal, Columbus

28: 681-744 (Oct.) 1932

Problem of Hypersusceptibility in Eczema and Dermatitis: Its Relation to Internal Medicine. H. N. Cole, Cleveland.—p. 701.
*Bone Tuberculosis: Relative Value of Operative and Nonoperative Treatment. W. A. Hoyt, Akron.—p. 705.
Studies in Rickets: V. Relation of Diet During Pregnancy to Development of Children at Seven Years of Age. T. K. Selkirk, J. V. Greenebaum and A. G. Mitchell, Cincinnati.—p. 710.
Practical Program for State Mental Hygiene Association. H. C. Schumacher, Cleveland.—p. 714.
Hospital Health Service of the Nurse in Training. W. C. Stoner and R. Reading, Cleveland.—p. 717.
Avulsion of Tibial Tubercle. L. V. Zartman and A. Sophie Rogers, Columbus.—p. 722.

Bone Tuberculosis.—Hoyt states that tuberculosis of bones must be considered as one manifestation of a general disease, as evidenced by the fact that 76 per cent of bone cases present other foci of infection. The treatment of bone tuberculosis is a joint medical and surgical problem. Heliotherapy and conservative measures are the proper treatment for all cases whether or not operation is performed. Until better proof of end-results is given, children up to the second decade should, as a rule, be treated by conservative methods only. All cases in adults should have preliminary treatment by conservative methods. When the general disease is quiescent, fusion operations should be done on the major joints. A long period of operative convalescence must be carried out with heliotherapeutic methods. The desired end-result in all cases is ankylosis. When this does not result, reoperation should be done. Extra-articular operations are the ones of choice.

Philippine Islands M. Assn. Journal, Manila

12: 359-410 (Aug.) 1932

Evaluation of Developmental Phase of Physique of Our New Generation. J. C. Nañagas, Manila.—p. 359.
Dilatation of Cervix During Labor. A. Villarama, Manila.—p. 368.
Organization of Department of Public Health and Public Welfare in Cuba. Maria Paz Mendoza-Guazon, Manila.—p. 370.
Advice to Graduates in Medicine. E. D. Aguilar, Manila.—p. 380.
Treatment of Acute and Chronic Otitis Media Purulenta with Sterilized Milk. J. R. Perez, Manila.—p. 382.

12: 411-470 (Sept.) 1932

Tuberculin Test and Reasons Why Tuberculosis Commission Is Using It. M. V. Arguelles, Manila.—p. 411.
Is Laparotrachelotomy a Panacea in Supposedly Infected Cases? A. Villarama, Manila.—p. 422.
Errors of Refraction Among Filipinos. C. D. Ayuyao, Manila.—p. 424.
Study of Incidence of Illegitimate Births Among Filipinos. R. G. Padua, Manila.—p. 430.
Tuberculosis Mortality in Municipality of Sara, Iloilo. F. Z. Cruz, Sara, Iloilo.—p. 440.
Case of Parricide by Poisoning. P. Anzures, Manila.—p. 444.

Philippine Journal of Science, Manila

49: 1-136 (Sept.) 1932. Partial Index

Some Studies in Larvicidal Effects of Arsenicals Other than Paris Green Against Anopheles Larvae: Larvicide Studies, III. P. F. Russell and A. P. West, Manila.—p. 97.

Porto Rico J. Pub. Health & Trop. Med., San Juan

8: 1-98 (Sept.) 1932

Nutrition Studies of Food Stuffs Used in Puerto Rican Dietaries: III. Vitamin G (B_2) Content of Ripe Plantain (Musa Paradisiaca, L.), and Pigeon Pea (Gandul), (Cajan Cajan, L.). J. H. Axtmayer and Sylvia Silva, San Juan.—p. 1.
Limitations of Sugar Fermentations in Establishment of Species of Monilia and Application of Simplified Nomenclature in Medical Literature. B. K. Ashford, San Juan.—p. 7.
Specific Anthelmintic Medication. M. C. Hall.—p. 35.
Notes on Puerto Rican Black Flies. S. Bradt.—p. 69.

Radiology, St. Paul

19: 135-202 (Sept.) 1932

*Terminal Ileum, Appendix, Cecum and Ascending Colon from Standpoint of Internist. D. P. Abbott, Chicago.—p. 135.
Protection in Roentgen Therapy. H. D. Kerr, Iowa City.—p. 145.
Reticulo-Endothelial System and Its Relation to Roentgen Study of Liver and Spleen After the Intravenous Administration of Thorium Dioxide Solution. L. S. Otell, Washington, D. C.—p. 148.
Progress in Radiology: 1931. J. D. Camp, Rochester, Minn.—p. 158.
Id.: The Thorax. W. W. Wasson, Denver.—p. 158.
Pneumonia, Roentgenologically Considered. A. G. Schnack, Honolulu, Hawaii.—p. 177.
Horizons in Radiotherapy. H. Hofmann, Buenos Aires, Argentina.—p. 183.

Terminal Ileum, Appendix, Cecum and Ascending Colon.—By reporting six cases in which roentgenograms supplied helpful conclusions in the diagnosis, Abbott emphasizes the importance of the internist's cooperation with the roentgenologist as a consultant, not only on paper but by personal visits to the department in the hospital or clinic group. The experience will be mutually beneficial, as well as profitable from the patient's standpoint. The patient with definite evidence of colitis, but questionable evidence of appendicitis, should have the former condition cleared up. During this treatment, close watch can be kept for any attacks of appendicitis. Patients having abdominal pain of obscure origin should have films made of the abdomen prior to the introduction of a contrast medium. The Graham-Cole gallbladder dye test is now so easily given orally, and so often reveals pathologic changes which have caused obscure or nonsubjective symptoms, that it has become almost a routine test in the author's service for patients who have suffered attacks of abdominal distress or who have had vague symptoms referable to the stomach or bowel. He also suggests that more small intestine fluoroscopies be done in cases showing negative colon examinations but presenting low abdominal pain which is not otherwise explained. The internist is advised to study the character of the pain present in each attack, in an endeavor to elicit that type which is characteristic of intestinal obstruction.

Southern Medical Journal, Birmingham, Ala.

25: 1005-1108 (Oct.) 1932

Abdominal Syndromes of Exceptional Interest: Their Underlying Pathology. E. H. Gaither, Baltimore.—p. 1005.
Bilateral Phrenicectomy in Treatment of Persistent Hiccoughs: Case Report. L. W. Angle, Kansas City, Kan.—p. 1012.
Various Uses of Electrosurgery in Treatment of Brain Tumors. E. Sachs, St. Louis.—p. 1013.
Treatment of Lung Abscess by Bronchoscopic Drainage. H. L. Kearney, New Orleans.—p. 1019.
Madura Foot in United States. P. Brindley, Galveston, Texas, and W. L. Howell, Rochester, Minn.—p. 1022.
Thrombopenic Purpura Hemorrhagica: Report of Unusual Case. L. Grove and J. M. Monfort, Atlanta, Ga.—p. 1027.
Urinary Lithiasis: Its Cause and Prevention: Evaluation of Contributions to Our Knowledge During Past Decade. L. D. Keyser, Roanoke, Va.—p. 1031.
Silent Renal Calculi. P. Bromberg and S. S. Riven, Nashville, Tenn.—p. 1040.
Relationship of Cranial Symptoms to Gynecologic Disease. P. H. Wood, Memphis, Tenn.—p. 1046.
Is Conservatism or Expectant Policy Best Course in Treatment of Febrile Abortions? C. J. Miller, New Orleans.—p. 1048.
Interruption of Pregnancy Before Child is Viable. J. C. Ayres, Memphis, Tenn.—p. 1049.
*Ablatio Placentae. J. F. Lucas, Greenville, Miss.—p. 1055.
Roentgen Pelvimetry and Cephalometry. H. J. Walton, Baltimore.—p. 1060.
*Observations on Breast Milk Production During Newly Born Period. A. G. Quinn, Memphis, Tenn.—p. 1061.
Incidence of Dermatophytosis of Feet with Comment on Use of Trichophytin. I. R. Pels and L. Schlenger, Baltimore.—p. 1066.
Fungus Infection of Bone and Joint. P. M. Keating, San Antonio, Texas.—p. 1072.
Injuries to Vertebral Column. H. Sweaney, Durham, N. C.—p. 1079.
Relation of City to School Child. W. H. Robin, New Orleans.—p. 1082.
Relation of State to School Child. J. O'Hara, New Orleans.—p. 1083.
Results from Field Activities in Tuberculosis Control in Tennessee. R. S. Gass, Nashville, Tenn.—p. 1088.
*Tuberculous Meningitis in Adults. J. C. George, Oteen, N. C.—p. 1092.
Southern Surgeons: Recollections of My Association with Them. W. J. Mayo, Rochester, Minn.—p. 1096.

Ablatio Placentae.—According to Lucas, mild cases of ablatio occur more often than is generally recognized, producing little maternal discomfort but often fatal to the child. A pregnancy toxemia, the nature of which is still undetermined, seems to be the most common predisposing factor. Cases vary widely in severity, ranging from small areas of separation with minimum reaction on the part of the mother to complete separation with uteroplacental apoplexy associated with marked shock out of all proportion to the amount of hemorrhage. The diagnosis is readily made from the history and physical examination. Prognosis depends on early recognition, gravity of the case and treatment instituted. Treatment must be individualized, depending on the type of case and the amount of cervical dilatation. Mild cases are treated by conservative means, severe cases vaginally if the condition of the cervix permits. Cesarean section is indicated if the cervix is closed, and hysterectomy if the uterus remains flabby and does not contract. If delivery is accomplished by the natural passages, prompt packing of the uterus is often necessary. Blood transfusion is a most valuable aid in preparing for delivery in severe cases, and spinal anesthesia is indicated when toxemia is present in operative deliveries.

Breast Milk Production.—From the observations made on 101 mothers, Quinn states that routine pumping of the breast at one feeding period during the day in a maternity hospital is practical. It provides a ready supply of breast milk for the hospital. With the cooperation of the attending physician it can be carried out in a private institution. In the newly born period, one complete emptying of the breasts in twenty-four hours does not increase the breast milk production in five days. Multiparous mothers do not produce more milk than primiparous or secundiparous mothers. White and Negro mothers produce approximately the same amount of milk in twenty-four hours. The increase and decrease of production at the different feeding periods occur at the same time in white and Negro mothers. An average of all production figures gave a decrease and an increase of production every twelve hours.

Tuberculous Meningitis in Adults.—In George's group of thirty-eight cases of tuberculous meningitis in adults, the incidence was approximately 1 to 250 among all classes of patients having active tuberculosis and 1 to 150 among Negroes. Active tuberculous processes were demonstrated elsewhere in the body in 100 per cent of the cases. The cardinal diagnostic symptoms were severe and persistent headache, nausea and vomiting, slow pulse, disproportion between pulse rate and temperature curve, increasing stupor and transitory eye symptoms. Spinal fluid examination was the measure of greatest diagnostic value. There was no definite neurologic symptom complex peculiar to tuberculous meningitis. There was a fatal termination in 100 per cent of his cases. The establishment of a definite diagnosis by clinical symptoms and spinal fluid examination means in his experience a fatal termination.

Southwestern Medicine, Phoenix, Ariz.

16: 355-396 (Sept.) 1932

Tuberculous Pleurisy with Effusion: I. Biologic and Investigative Aspect. W. S. Lemon, Rochester, Minn.—p. 355.
Id.: II. Clinical Aspect. W. S. Lemon, Rochester, Minn.—p. 364.
What an Organized Group Can Do Toward Forwarding Clinical Research and Treatment of Cancer: Reviewing Four Hundred and Thirty-Six Cases of Cancer Analyzing a Few of Our Clinical Problems in Diagnosis and Treatment. G. R. Stevenson, San Diego, Calif.—p. 374.
Public Health Notes. J. R. Earp, Santa Fe, N. M.—p. 378.

United States Naval Med. Bulletin, Washington, D. C.

30: 471-645 (Oct.) 1932

Spider Poisoning: Study of Toxin of Black Widow Spider. W. W. Hall and W. A. Vogelsang.—p. 471.
Routine Annual Chest Examination. F. W. Muller.—p. 478.
Diverticulum of Esophagus: Report of Case. G. A. Eckert.—p. 483.
Blood Urea Clearance as Test of Renal Function. D. J. Cracovaner.—p. 490.
Value of Immediate Full Restorations and Preextraction Records. S. S. Jaffe.—p. 498.
Clinical Application of Kahn Reaction in United States Navy. J. M. McCants.—p. 502.
"Mild Influenza." J. Buckley and A. R. Behnke.—p. 508.
One-Piece Resection of Thyroid Gland. J. J. A. McMillin.—p. 511.

Yale Journal of Biology and Medicine, New Haven

5: 1-96 (Oct.) 1932

The Peregrinating Dr. William Tully, A.M., M.D. H. B. Ferris, New Haven, Conn.—p. 1.
Comparative Statistical Analyses of 1916 and 1931 Epidemics of Poliomyelitis In and About the City of New Haven. J. R. Paul, J. C. Trask and R. Salinger, New Haven, Conn.—p. 39.
The Chemistry of the Lens. A. C. Krause, Baltimore.—p. 55.
Whooping Cough: Preliminary Studies: I. Early Diagnosis by Cough-Plate Method. C. S. Culotta and D. F. Harvey, New Haven, Conn.—p. 69.
Myxedema Heart Disease: Report of One Case. J. R. Gallagher, New Haven, Conn.—p. 75.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

55: 287-478 (Sept.) 1932

Neuroblastomas and Gangliocytomas of Central Nervous System. J. W. Kernohan, J. R. Learmonth and J. B. Doyle.—p. 287.
Tuberose Sclerosis and Allied Conditions. M. Critchley and C. J. C. Earl.—p. 311.
*The Grasp Reflex of Foot. W. R. Brain and R. D. Curran.—p. 347.
Glossopharyngeal Neuralgia. W. S. Keith.—p. 357.
*Syphilitic Hydrocephalus in Adult. J. G. Greenfield and R. O. Stern.—p. 367.
Pharmacology of the Grasp Reflex. C. P. Richter and A. S. Paterson.—p. 391.
Cataplexy. M. Levin.—p. 397.
Structure and Connections of Thalamus. W. E. le Gros Clark.—p. 406.

Grasp Reflex of Foot.—Brain and Curran studied the grasp reflex of the foot in fifty children of various ages. The appropriate stimulus is light pressure on the plantar surface of the distal part of the foot including the toes; the afferent focus appears to be the ball of the big toe. A light stroking movement from the heel forward will also evoke it. The motor response, which is unilateral, is flexion and adduction of the toes. From their observations the authors state that the presence of the grasp reflex of the foot thus corresponds roughly with the normal persistence of the extensor plantar reflex in infancy. As in all cases the response to scratching the sole was recorded, it is possible to determine how close this coincidence is. In twenty-three of the fifty children the grasp reflex was associated with extensor plantar responses, in eleven cases with flexor responses. Of sixteen children in whom the grasp reflex was absent, fifteen showed flexor plantar reflexes and only one extensor plantar reflexes. It is clear from these figures and from the ages (from 9 months to 3 years) of the children in the different groups that the grasp reflex tends to outlast the extensor plantar reflex. In only one instance did the reverse occur. The authors conclude that the foot grasp reflex is normally present in the human infant during the first year of life and usually persists somewhat longer than the extensor plantar reflex. From their observations in fifty-nine "mongols" (aged from 5 to 50) the authors state that the foot grasp reflex is elicitable in approximately 50 per cent of mongolian imbeciles. It may also occur as a result of lesions of the frontal lobe. A homologous foot grasp reflex is present in the infant monkey.

Syphilitic Hydrocephalus in Adult.—Greenfield and Stern report seven adult cases of syphilitic hydrocephalus. They conclude that hydrocephalus is a fairly common result of basal gummatous meningitis. Although it is usually of the communicating type, complete obstruction of the foramen of Magendie is not uncommon, and the foramina of Luschka may also be sealed up by plastic meningitis. At the present time syphilitic hydrocephalus is a more common postmortem observation than the larger syphilitic gummas of the meninges, on which more emphasis was laid in the past. Minute gummas, sometimes of the miliary giant-cell type, are often present in hydrocephalic cases. The ependymitis and extrapial outgrowths of neuroglia associated with gummatous meningitis are direct results of inflammation in relation to these membranes. Degeneration of the myelinated fibers on the surface of the spinal cord also occurs in long standing cases.

Bristol Medico-Chirurgical Journal

49: 177-254 (Autumn) 1932

Mental Deficiency: Analysis of Mental, Physical and Medical Characteristics of Group of One Hundred and Sixty-Two Adult Feeble-minded Women. R. J. A. Berry.—p. 177.
Medical Education. C. E. S. Flemming.—p. 199.
Dysphagia with Anemia: Reports of Five Cases. E. Watson-Williams.—p. 209.
Albuminuria in Pregnancy. R. S. S. Statham.—p. 219.
Id.: J. A. Nixon.—p. 229.
Notes on Female Circumcision as Practiced by the Ameru. H. W. Brassington.—p. 237.
The British Pharmacopeia. A. L. Taylor.—p. 241.

British Journal of Dermatology and Syphilis, London

44: 469-520 (Oct.) 1932

Multiple Epitheliomas in Albino: Case. F. F. Hewer.—p. 469.
Cause of Hyperglycemia in Eczematous Patients. A. R. Somerford.—p. 476.

British Journal of Physical Medicine, London

7: 113-132 (Oct.) 1932

Chronic Rheumatic Joint Disease in General Practice. P. Ellman.—p. 115.
Physical Measures in Painful Shoulders. R. Kovacs.—p. 117.
Instruction in Actinology in Great Britain. W. K. Russell.—p. 119.
Nature, Properties and Uses of Infra-Red and Luminous Rays. A. Furniss.—p. 121.

British Medical Journal, London

2: 617-656 (Oct. 1) 1932

Intrathoracic New Growths and Value of Bronchoscopy in Diagnosis and Treatment. M. Davidson.—p. 617.
*Antenatal Radiology. R. E. Roberts.—p. 621.
Case of Addison's Disease Treated with Cortical Suprarenal Extract. J. G. McCrie, I. M. Mears and W. G. Millar.—p. 622.
*Addison's Disease and Its Treatment with Cortical Extract. S. L. Simpson.—p. 625.
Care of Lungs in Anesthesia. H. W. Featherstone.—p. 628.

Antenatal Radiology.—In the investigation of 600 cases of pregnancy by means of roentgen rays undertaken at the request of an obstetrician, either to confirm some clinical suspicion of abnormality or to solve some problem which could not be clearly elucidated by the ordinary methods of examination, Roberts observed that antenatal radiology gave valuable information in the following respects: (1) diagnosis of pregnancy after the sixteenth week, differential diagnosis of pregnancy from hydatidiform mole and pelvic tumors; (2) estimation of the age of the fetus; (3) position and presentation of the fetus; (4) estimation of pelvic measurements; (5) investigation of possible disproportion between the fetus and the maternal pelvis; (6) investigation of the cause of hydramnios, with reference to multiple pregnancy and fetal abnormalities; (7) diagnosis of extra-uterine pregnancy, and (8) diagnosis of intra-uterine death. Neither in the author's experience nor in that of other authors is there any evidence that diagnostic antenatal exposure to roentgen rays is in any way harmful to the fetus or mother.

Addison's Disease and Its Treatment with Cortical Extract.—Simpson states that the administration of cortical extract must be regarded as a substitution therapy comparable to that of insulin in diabetes mellitus. The extract can be given intravenously, intramuscularly or subcutaneously, the former in crisis, the latter two only when small quantities are needed. The discomfort of intramuscular or subcutaneous injection can be obviated by the addition of 1 per cent procaine hydrochloride or by very slow injection. Protein-like reactions have been recorded with intravenous injections. This possibility calls for caution in patients who may have an allergic diathesis. The dose of cortical extract must be judged largely from clinical experience. A high blood urea is a warning of severe insufficiency, but a normal blood urea is no guaranty against the imminence of a crisis. A low blood sugar may coexist with a satisfactory clinical state, but blood sugars below 0.6 per cent suggest the need for very close observation. A high blood calcium or blood phosphate is also a warning indication. A marked degree of creatinuria occurs in severe cases, and the author and Dobbs have confirmed in two cases the diminution or even disappearance of creatinuria with cortical extract treatment. Failure to produce diminution suggests inadequate dosage. Creatinuria of myasthenia gravis has been found unaffected by cortical extract. In crisis the author advises large quantities of extract—at least 50 cc. intravenously to commence with. Infection calls for immediate doubling of the maintenance dose of cortical extract. The functioning remnant of the suprarenal is impaired by infection, as the pancreas is in diabetes mellitus. Dehydration and oliguria are important factors in crisis, and large quantities of intravenous dextrose and saline solution are an essential part of the treatment. The author reports four cases of Addison's disease treated with cortical extract. He believes that the problems of Addison's disease well illustrate both the value and the limitation of animal experiments, and observations on man provide important supplementary knowledge. He suggests that the considerations he has mentioned justify the tentative acceptance of the following postulates: 1. There are several internal secretions of the suprarenal cortex (as in the pituitary gland) which are unevenly represented in potency in the cortical extract at present available. 2. There is a relationship, at present ill defined, between the cortex and the medulla, which parts of the suprarenal, although of

different embryology and morphology, may have been woven so closely together not merely as a purposeless whim of nature. 3. Although the cortex and not the medulla is essential to life, the absence or diminution of epinephrine plays a part in the symptomatology of Addison's disease.

Edinburgh Medical Journal

39: 601-656 (Oct.) 1932

Peripheral Neuritis: Morrison Lectures, 1932, Delivered Before the Royal College of Physicians of Edinburgh, May 1932. J. Collier.—p. 601.
*Nonspecific Protein Therapy in Rheumatic Conditions. R. M. Murray-Lyon.—p. 619.
Recurrent Bleeding from Eyes. D. M. Greig.—p. 628.

Protein Therapy in Rheumatic Conditions.—Murray-Lyon gives the results of twelve cases of chronic arthritis treated with typhoid vaccine intravenously and sixteen with peptone; twelve other patients who had no shock therapy are included as controls. Twelve cases of subacute rheumatism not reacting to salicylates were also treated by typhoid vaccine. The cases of arthritis were all of the type commonly called rheumatoid arthritis (being similar to those described by Cecil as being of streptococcic origin). The patients were either seen at the second stage of the disease or had reached the third stage, where the activity of the disease was almost or completely spent. The typhoid vaccine and peptone therapy was used as an adjuvant to the ordinary routine treatment of the cases, which consisted of the removal of septic foci when discoverable, massage, diathermy, exercises, dieting and so on. The twenty-eight cases of chronic arthritis treated by nonspecific protein shock therapy showed a greater immediate response to treatment than the twelve controls not given shock therapy. The late results in these two groups of patients were similar. The twelve cases of subacute rheumatism resistant to salicylates were greatly improved by nonspecific shock therapy.

Indian Medical Gazette, Calcutta

67: 481-540 (Sept.) 1932

*Chloral Hydrate and Paraldehyde as Drugs of Addiction. R. N. Chopra and G. S. Chopra.—p. 481.
Cholera and Cholera-Like Vibriophages. C. L. Pasricha, A. J. DeMonte and S. K. Gupta.—p. 487.
*Plasmochin as Malarial Gametocide. S. N. Sur, H. P. Sarkar and K. M. Banerji.—p. 490.
Malaria in Mingaladon Cantonment, Burma. M. Jafar.—p. 493.
*Milk Injections in Malarial Spleens. B. H. Singh.—p. 498.
Epidemiologic and Experimental Study of Dracontiasis in Chitaldrug District. V. N. Moorthy.—p. 498.
Protective Value of TAB Inoculation as Indicated by Agglutinating Power of Serum. A. N. Bose and S. K. G. Dastidar.—p. 504.
Notes on Urinary Calculi. B. P. Sabawala.—p. 509.

67: 541-600 (Oct.) 1932

Study of Distribution of Sugar in Blood of Diabetic and Nondiabetic Indian Subjects. J. P. Bose.—p. 541.
National Drink of the Hill Folk of Darjeeling. N. K. Ray.—p. 551.
Short Account of Recent Outbreak of Diphtheria at Rajkot, with Especial Reference to Carrier Problem. J. B. Hance, T. H. Trivedi and H. M. Chhaya.—p. 552.
Primary Bronchogenic Carcinoma. S. C. Seal.—p. 553.
Outbreak of Exfoliative Glossitis in Assam Jail. G. H. Fitzgerald.—p. 556.
Modern Intracapsular Operation for Senile Cataract: Stanculeanu-Torok-Elschnig Technic. G. J. Gnanadickam.—p. 559.
Prevention of Heart Affections in India. U. P. Basu.—p. 566.

Chloral Hydrate and Paraldehyde as Drugs of Addiction.—The Chopras state that addiction to chloral hydrate is of recent origin. The addicts are mostly between the ages of 21 and 40, and in the majority of cases are also addicted to alcohol or opium. Addiction to chloral hydrate in India differs from that in Europe and America in that in the latter countries it is the physician who is responsible for producing the habit, whereas in India the habitual use of this drug is mainly among liquor drinkers who want its intoxicating effects. They start by putting it in their potion to strengthen the effects of the drink, and in this way obtain intoxication at a small cost. The effects produced by chloral hydrate differ from those of other drugs of addiction, such as alcohol and cocaine, in that there is no preliminary stage of stimulation and excitement; the pleasurable or euphoric effects, therefore, resulting from the use of it are entirely absent. It depresses from the beginning, and narcosis and deep sleep are produced by comparatively small doses. If narcosis is not produced, the addict becomes miserable and irritable and resorts to larger doses. The modes of administration of the drug, the etiology of the addiction, the age at which the habit is started, its duration and the objective and subjective symptoms produced, as determined by a study of forty cases, are described by the authors. The habit is harmful and dangerous. It is more liable to produce pathologic changes in the organs and immediately fatal results than any other drug of addiction used in this country. The mental, moral and physical degeneration produced by this addiction are more pronounced than with the common drugs of addiction in India. The drug is cheap and is easily procurable; there is no control over the sale of it in India. These factors are largely responsible for the spread of its use among the masses. Habitual use of paraldehyde is known in India, but it is uncommon. There is a danger of the use of chloral hydrate for adulteration of alcoholic beverages being extended and of the further spread of the chloral habit. The practitioners of indigenous medicine and the itinerant quacks are beginning to prescribe the drug.

Plasmochin as Malarial Gametocide.—According to the experiments of Sur and his associates, plasmochin even in small doses of 0.02 Gm. a day for each adult for three days without the aid of quinine can reduce the number of malarial parasites in all stages to such an extent that they are not detectable in 77 per cent of cases in 100 microscopic fields of an ordinary thin film. It was particularly useful in Plasmodium vivax and P. malariae infections. In cases of P. falciparum infections about 50 per cent of the cases show parasites in the ring stage and crescents even after the mentioned dose. It can prevent development of malarial parasites in transmitting species of anopheline mosquitoes. It is therefore a valuable drug for devitalizing the gametocytes in a community and should be used in all antimalarial operations that aim at the reduction of gametocytes. The cost will be balanced by the fact that a very small dose can prevent the parasites from developing in mosquitoes.

Milk Injections in Malarial Spleens.—Singh has used milk injection in malarial spleens for over six years in various morbid conditions where he considered them beneficial. There is usually a reaction with a hopeful prognosis and a feeling of general well being when the reaction is over. This treatment is being adopted in the several institutions under the author's control and the results are so uniformly good that the local practitioners have started using it in their private cases. At the Fraser Hospital, Burdwan, where facilities exist for doing blood counts and keeping a systematic record of all cases, this work is being done on a large scale. In some kala-azar spleen cases milk injections have also been given, but the results were not as succeessful as with malarial spleens. The injections are given intramuscularly in the gluteal region. The doses used are 2, 4, 6, 8 and 10 cc. of the fat free sterilized milk at two, three or four day intervals according to the reaction produced. A milk preparation can be used instead of milk but the author is in favor of milk as it is easily obtainable, even in villages, and costs practically nothing.

Lancet, London

2: 661-716 (Sept. 24) 1932

Errors in Diagnosis. A. Abrahams.—p. 661.
Tests for Respiratory Efficiency, with Especial Reference to Mercury U-Tube. A. Moncrieff.—p. 665.
*Vitamin A Reserves of Human Liver in Health and Disease, with Especial Reference to Scope of Vitamin A as Antiinfective Agent. T. Moore.—p. 669.
Case of Simple Cyst of Liver: Analysis of Sixty-Two Other Cases. D. A. Beattie and H. D. Robertson.—p. 674.

Vitamin A Reserves of Human Liver in Health and Disease.—Moore determined vitamin A in more than 300 specimens of human liver, obtained at necropsies, by means of the antimony trichloride method. According to his observations the vitamin A reserve varied over an extremely wide range even among healthy persons dying from accidental causes. The medial value for a group of accidental cases has been taken as representative of the "normal" vitamin A reserve. The ranges of vitamin A found in different diseases have been compared by a diagrammatic method, and by taking the ratio of the number of cases falling above and below the normal vitamin A reserve. Normal ranges of vitamin A reserves were observed in the following groups of diseases: "internal accidents"

(aneurysms, hemorrhage, intestinal strangulations, and so on), diseases of the alimentary tract and peritoneum, heart infections, urogenital infections, infections of the head and spine (including otitis media, and all forms of tuberculosis, neoplastic diseases, syphilis). In the case of some of these diseases involving chronic infection—e. g., tuberculosis—it is possible that deceptively high values may have resulted through the administration of cod liver oil after the condition of the patient had become too advanced to permit recovery. This possibility is probable in the case of acute infections. Vitamin A reserves much above normal were observed in cases of diabetes in which dietetic treatment had been given. Vitamin A reserves tended to be subnormal in the following groups: organic heart disease, nontuberculous respiratory diseases (particularly bronchitis) and organic kidney diseases, and in septicemias and certain septic conditions. It must not be forgotten that in some of these diseases vitamin A subnormality may have been a secondary effect rather than a predisposing cause. Since adequate vitamin A reserves were frequently observed in a wide variety of infective conditions, it is plain that vitamin A should not be regarded as a positive antiinfective agent, indiscriminate in action. The term "antiinfective" is only justifiable in a sense complementary to the fact that deficiency of vitamin A leads to subnormal powers of resistance. The author suggests that partial vitamin A deficiency, or the state of multiple malnutrition which it must usually imply, may be of importance in the etiology of some types of infection under clinical conditions.

Medical Journal of Australia, Sydney

2: 437-468 (Oct. 8) 1932

*Premedication with Barbiturates. G. Brown.—p. 437.
Relationship Between Allergy and Anaphylaxis. E. H. Molesworth.—p. 447.
Oil of Australian Sandalwood. J. MacPherson.—p. 452.

2: 469-496 (Oct. 15) 1932

Listerian Oration: Nephritis. S. A. Smith.—p. 469.
Right-Sided Abdominal Pain. H. S. Stacy.—p. 476.
Value of Medical Services in Relation to Problems of Depopulation. R. W. Cilento.—p. 480.

Premedication with Barbiturates.—Brown states that morphine injected in the usual dosage is quite inadequate to prevent the emotional disturbance in a patient attendant on being taken to the operating room, watching the preparations, and inhaling the fumes of an anesthetic until unconsciousness supervenes, but that the barbiturates are capable of reducing fear and psychic shock. The amount and concentration of the anesthetic may be lessened by their use. Also the postoperative discomforts are decreased. The barbiturates prolong unconsciousness after operation, and this is followed by a further period during which the senses are dulled, although the patient is cooperative. Local and spinal anesthesia are assisted by the use of the barbiturates; the dose should be only sedative and not hypnotic, as otherwise the patient may become restless. A further advantage is that the toxicity of procaine hydrochloride and cocaine is lessened. The barbiturates should not be used as the sole anesthetic. The barbiturates should not be employed in patients who show signs of lung disease. When renal deficiency is present, the dosage of the barbiturates should be diminished. The author reviews twenty-four cases in which the barbiturates were used.

Practitioner, London

129: 425-520 (Oct.) 1932

Diathesis, or Variation and Disease in Man. J. A. Ryle.—p. 425.
General Aspects of Hereditary Disease. C. P. Blacker.—p. 436.
Constitutional Factor in Diseases of Blood. L. J. Witts.—p. 450.
Some Aspects of Rheumatism. C. Sundell.—p. 458.
Recent Developments in Immunotherapy. L. P. Garrod.—p. 471.
Silico-Anthracosis. W. E. Cooke.—p. 483.
Etiology of Miners' Nystagmus. W. J. Roche.—p. 498.
*Plantar Warts and Their Treatment. J. L. Franklin.—p. 506.
Radical Cure of Hernia: Regional Anesthetic. J. C. O. Bradbury.—p. 510.

Plantar Warts and Their Treatment.—According to Franklin, plantar warts occur at any age but are more frequent in young people. The two sexes are affected equally. Their cause is obscure but they are probably of infective origin, and the fact that their incidence appears to be on the increase and that they are especially common among school children and athletes who walk barefoot in crowded dressing rooms lends color to this hypothesis. Plantar warts may occur on any part of the soles but principally affect the balls of the toes, the metatarsal pads and the heels. They are not amenable to psychologic treatment, as is claimed to be the case with warts in other sites. Internal medical treatment is of no benefit. Owing to their situation, plantar warts are not suitable for treatment with caustics such as trichloracetic acid, nitric acid or pure phenol. Excision is a bad method of dealing with the condition. It requires deep cutting and the use of stitches and is altogether unnecessary. Radium is one of the best methods, but for obvious reasons it is not within the reach of every one. In some hands roentgen rays are almost as effective as the application of radium, and the after-effects are similar. Various methods have been tried. The best is the administration of a full pastille dose, a 1 mm. aluminum filter being used. Plantar warts may be frozen with carbon dioxide snow. This treatment is by no means certain and often has to be repeated. Electrolysis has been tried in the treatment of plantar warts, the growth being transfixed with a zinc needle connected up with the positive pole of a galvanic battery and a current of from 2 to 5 milliamperes passed for several minutes. This treatment is not to be recommended, owing to the difficulty in determining when the wart has been completely destroyed. In the author's opinion, curettage is by far the best method of treating plantar warts. The sole of the foot is carefully cleaned with alcohol and a cubic centimeter of a 4 per cent solution of procaine hydrochloride with a drop of epinephrine is injected into the base of each wart. The prick of the needle in this situation is often painful and this may be mitigated to some extent by freezing the spot with ethyl chloride spray before inserting the needle. Anesthesia is complete in four or five minutes. The wart is then scraped out with a sharp Volkmann's spoon; if the wart is small, a better instrument is the small curet used by ophthalmologists for scraping out meibomian cysts. Care must be taken to remove all traces of warty material or there will be a recurrence. Profuse bleeding generally follows the operation, but this is readily stopped by going over the base of the cavity with the dull red point of the galvanocautery. The part is then painted with iodine and a simple dressing applied. If a cautery is not available, firm pressure with a pad and bandage for ten or fifteen minutes will stop all bleeding. After-treatment consists in dressing the cavity daily with ointment of ammoniated mercury until it heals. Pain can be prevented to a large extent by dressing the wound immediately after the operation with an ointment consisting of 5 per cent stovaine in petrolatum.

Tubercle, London

13: 529-576 (Sept.) 1932

Chronic Pulmonary Suppuration and Its Treatment by Bronchoscopy and Drainage. A. J. S. Pinchin and H. V. Morlock.—p. 529.
Review of Artificial Pneumothorax Cases. G. Hurrell.—p. 542.
Detection of Tubercle Bacilli in Blood. R. Pearce.—p. 545.

Japanese Journal of Experimental Medicine, Tokyo

10: 265-371 (Aug. 20) 1932

Study on Inheritance of Immunity. T. Ono.—p. 265.
Contributions to Study on Antitoxin Contents of Blood Serums of Diphtheric Patients and Diphtheric Bacilli Carriers. K. Yokoi.—p. 291.
Experimental Investigation on Secretion of Gastric Glands, Particularly Those of Fundus. I. Sugishima.—p. 303.
Influence of Parenterally Introduced Liver Cell Constituents on Amount of Urobilin Body in Urine: First Report. R. Watarai.—p. 325.
Id.: Second Report: Effect on Experimental Urobilinuria Due to Hemolized Blood Injection. R. Watarai.—p. 347.
Id.: Third Report: Influence of Parenterally Administered Urobilin on Hyperurobilinuria. R. Watarai.—p. 359.

Journal of Oriental Medicine, South Manchuria

17: 9-15 (Aug.) 1932

Reticulocytes in Normal and Pathologic Conditions: II. Changes Caused by Hunger and Bleeding. S. Yamaguchi and Y. Suzuki.—p. 9.
Effect of Blood Transfusion on Immune Bodies: II. Blood Transfusion and Hemolysin. M. Okamoto.—p. 10.
Persistence of Manchurian Spirochaeta Recurrentis in Brain: Experimental Study. H. Hiroki.—p. 11.
Quantitative Analysis of Biologic Hydrochloric Acid Morphine. B. Terada and M. Honda.—p. 13.
Isolation of Coli Bacteria from Feces of Healthy Persons and Patients with Beriberi. T. Haschimoto, H. Aizumi, K. Dendo and M. Furuno.—p. 14.
Parasites Discharged Through Urinal Tract. K. Kitagawa.—p. 15.

Policlinico, Rome

39: 1569-1604 (Oct. 10) 1932. Practical Section

*Hydrogen Dioxide Test in Differential Diagnosis of Exudates and Transudates. T. Lucherini.—p. 1569.
Statistical, Clinical and Epidemiologic Aspects of Croupous Pneumonia with Particular Reference to "Pneumonia Houses." I. Cornia.—p. 1570.
Kelotomy and Entero-Anastomosis. V. Griseri.—p. 1576.

Hydrogen Dioxide Test in Differential Diagnosis of Exudates and Transudates.—Lucherini pours solution of hydrogen dioxide into a test tube up to about 2 cm. from the top and adds a drop of the fluid under examination; the tube is then observed against a black background. If the drop falling to the bottom of the tube produces an opalescent bluish white streak, tortuous as cigaret smoke, the fluid is an exudate. This does not occur in the case of a transudate. The author maintains that solution of hydrogen dioxide gives the same results as Rivalta's reaction and that his is the more efficacious test, since solution of hydrogen dioxide is a standard preparation and may be used with greater ease and rapidity.

Progresos de la Clínica, Madrid

40: 501-560 (Sept.) 1932. Partial Index

Therapeutic Value of Some Methods in Bacteriologic Diagnosis of Tuberculosis. A. Saenz.—p. 510.
*Adenoid Growths and the Calcium Content of Blood. Maria C. Sedeña Deben.—p. 509.
Present Conception on Celiac Disease (Intestinal Infantilism). F. S. Saráchaga.—p. 526.
Metropathia Hemorrhagica Juvenilis. C. Fernández Ruiz.—p. 534.
*Female Epispadias. J. Estella.—p. 541.

Adenoid Growths and the Calcium Content of Blood.—Sedeña Deben states that there is a relationship between the presence of adenoid growths and the calcium content of the blood. The disturbances of the calcium metabolism in children play an important part in the development of several pathologic conditions, especially tuberculosis. The author believes that the adenoid growths may have a tuberculous etiology. She found disturbances of the calcium metabolism in fifty-five children with adenoid growths, in 76.3 per cent of whom the tuberculin test gave positive results. From her observations the author concludes that children with adenoid growths are susceptible to the development of tuberculosis because their organic forces of defense are diminished. It seems advisable to perform the several bacteriologic and clinical tests (now in use for the diagnosis of tuberculosis) during the examination of children with adenoid growths, in order to establish an early diagnosis on the possible presence of tuberculosis. The administration of calcium preparations to those children has a regulating action on the calcium metabolism, which effect ceases when the administration of calcium preparations to the patient is discontinued. Adenoidectomy is a simple method which improves the patient's condition and regulates the calcium metabolism. The calcium content of the blood increases after adenoidectomy in patients with hypocalcemia, decreases after the operation in patients with hypercalcemia, and does not change in patients with a normal calcium content of the blood. The regulation of calcium metabolism after adenoidectomy seems to be caused by an indirect action of the hypophyseal system through the parathyroid glands, which have a direct action on the regulation of calcium metabolism.

Female Epispadias.—Estella says that female epispadias is not as uncommon as it is believed to be. He has observed it in 4 per cent of female patients with abnormalities of the genito-urinary apparatus. Anatomically, epispadias may be classified into vestibular (corresponding to the vestibule of the vagina), clitoridean, subsymphysial and retrosymphysial, and total epispadias. The functional disturbance directly derived from epispadias is incontinence of urine, caused by the anatomic insufficiency of the sphincter vesicae. In most of the patients there is total incontinence. This causes irritation of the vulvar mucous membranes and the neighboring skin, with infection which later is propagated to the deep portions of the urethra and to the bladder. Because of the danger of infection and the continuous discomfort and embarrassment of the patients, the therapy of epispadias is of great importance. The only treatment is surgical reconstruction of the urethral canal and its sphincter. When the fissure of the upper wall of the urethra reaches a very high point (retrosymphysial and complete epispadias) the formation of an artificial urethral canal and sphincter is not possible because of the small portion of urethral wall available for this purpose. In these cases Marion's operation, according to Lowsley's modified technic, is indicated. The reconstruction of the urethra and its sphincter is possible when the urethral wall has a normal portion of sufficient length (vestibular epispadias and some cases of subsymphysial and clitoridean epispadias). In these cases Goebell-Stoeckel's operation gives good results. In girls who have not reached puberty the author performs Goebell-Stoeckel's operation, without cutting the hymen or the vagina, but detaching the urethrovesicovaginal muscles. The author illustrates the technical steps of Marion's, Marion-Lowsley's and Goebell-Stoeckel's operations. He believes that these operations give the best results in the reconstruction of the urethral canal and sphincter when the technical details are carefully followed. The technics of Marion-Lowsley and of Goebell-Stoeckel may be complemental to each other in order to obtain the best results.

Semana Médica, Buenos Aires

39: 769-836 (Sept. 22) 1932. Partial Index

Treatment of Hydatid Cysts Ruptured into the Bile Ducts. O. Ivanissevich.—p. 769.
Hydrocephalus of Large Size. J. A. Beruti and J. León.—p. 771.
Sclerosis of Pulmonary Artery and Its Branches: Clinical Picture. C. Patiño Mayer.—p. 778.
Importance of Examination of Patient in the First Oblique-Frontal Position of Chest, by a Ten Degrees Rotation of Thorax Toward the Left Side, in Determination of Participation of Left Auricle in Formation of Right Outline of Cardiac Shadow in Roentgen Picture of the Heart. P. Cossio and R. Dassen.—p. 788.
Pathologic Simple Dislocation of the Hip Joint in Children. A. Lagos García and M. Fitte.—p. 792.
*Uncommon Cerebral Syndrome Due to Suppurative Thrombophlebitis of Otitic Origin: Case. R. Podestá.—p. 808.

Uncommon Cerebral Syndrome of Otitic Origin.—Podestá reports the case of a girl, aged 6, who presented a grave condition of septicemia as an exacerbation of chronic otitis. At operation, thrombophlebitis of the lateral sinus and of the superior portion of the external jugular vein was found. The vein contained much pus. The pus was evacuated and the external jugular vein was ligated in its cervical portion. The operation was followed by apparent recovery; one month later, however, the patient showed a clinical picture of intracranial hyperpressure. The predominant symptoms were papillary stasis, hypotonia of the extremities and abolition of the tendon reflexes. The ophthalmologic examination of the fundus oculi proved the presence of a bilateral papillary stasis. The neurologic examination of the patient indicated a great intracranial hyperpressure. During the lumbar puncture, which was performed three times, clear limpid cerebrospinal fluid, of normal constitution, spurted, while the patient was lying down (hyperpressure). The repeated lumbar punctures were followed by recovery. The author believes that in his case the disturbances of the return circulation, at the level of the posterior cranial fossa, played the primary part in the production of the syndrome. He also says that in those cases in which the ligation of the external jugular vein is followed by the appearance of a characteristic clinical picture of intracranial hyperpressure, with a syndrome of papillary stasis, hypotonia of the extremities and abolition of the tendon reflexes, it is advisable to perform early repeated lumbar punctures. The conservation of the integrity of the visual functions and the attenuation and even complete control of the effects of intracranial hyperpressure depend on repeated lumbar punctures, as early as possible, after the appearance of the optic and neurologic syndrome.

Archiv für Kinderheilkunde, Stuttgart

97: 193-256 (Oct. 4) 1932. Partial Index

Casuistics of Arachnodactylia. A. Kollmann.—p. 206.
*Relations of Meningitis to Various Stages of Tuberculosis. D. Orosz.—p. 216.
Viscosity Curve in Toxicosis. J. Surányi and P. Sonnauer.—p. 230.
Encephalitis Following Rubeola: Case. J. Siegl.—p. 235.
Biologic Character of Coli Strains in Pyelocystitis in Children. B. Vasile.—p. 238.

Tuberculous Meningitis.—Orosz states that some cases of tuberculous meningitis are connected with the primary infection. They usually develop during the second month after development of the allergy or its symptoms; that is, about two or three months after the first infection. Within five or six months after the first infection the incidence of tuberculous

meningitis shows such an increase that the separation of this group from other cases seems justified pathogenically as well as clinically. With regard to the stage of the primary disease, this form of meningitis can be designated as "early secondary." The short interval between the primary infection and the meningitis probably denotes a direct causal connection with the primary infection. In the course of late secondary tuberculosis it may again reach dangerous fluctuations in the resistance power and, in connection with it, meningeal dissemination of the tubercle bacilli. In the pathogenesis of this form of meningitis a number of exogenic and endogenic factors of biologic mechanical nature may be involved. Thus the mechanism is less uniform than in the "early secondary" cases. The action of some of the factors is frequently indirect and thus the time relations are probably less constant and less easily determinable than in the first group of meningeal inflammations. In regard to the exogenic factors the author reaches the following conclusions: 1. Measles may have a direct or an indirect action, but usually the influence is direct; that is, it becomes manifest within the first three or four months, on the average after six or eight weeks. 2. After whooping cough the latent meningitis period fluctuates between three and six months. This is probably due to the fact that whooping cough is a prolonged disturbance, the influence of which on the organism is less intense than that of measles. To the same factor the author ascribes the tendency for whooping cough to lead less often to meningitis than does measles. 3. Other disturbances seem to have a causal influence within a period of three months; after that neither a direct nor an indirect relation can be seen.

Archiv für klinische Chirurgie, Berlin

172: 1-190 (Oct. 3) 1932. Partial Index

Technic of Gastric Resection in Eiselsberg Clinic. R. Demel.—p. 1.
Influence of Gastric Musculature on Form of Gastric Ulcer. R. Lotzin. —p. 29.
Effect of Sympathetic Vasomotor Centers and Nerves on Origin of So-Called Trophic Ulcers of Extremities. Marie Sseniavina.—p. 42.
Rôle of Nervous System in Regeneration of Skin. A. J. Ssoson-Jaroschewitsch and L. O. Zewald.—p. 55.
*Diagnostic and Prognostic Value of Perifocal Leukocytic Formula. M. M. Altschuler and A. N. Chazin.—p. 69.
Contribution to Surgical Treatment of Perforation of Liver Echinococcus into Bronchus. H. Toole.—p. 106.
*Pathogenesis of General Fibrous Osteitis (Osteodystrophy). J. Marx. —p. 112.

Diagnostic Value of Perifocal Leukocytic Formula.—Altschuler and Chazin attempted to determine the diagnostic and prognostic value of the leukocytic picture of the blood taken from the vicinity of an infective focus (perifocal blood). The observations were made on 5 healthy persons and 110 sick persons, of whom 95 had bone and joint tuberculosis and 15 had bone and joint disease of infectious nature other than tuberculosis. The number of leukocytes as well as the leukocytic formula of the peripheral and periarticular blood of healthy persons was essentially similar. They found that the perifocal blood of the sick contained more leukocytes than the peripheral blood. In instances of infectious disease other than tuberculosis, the neutrophils predominated in perifocal blood. Apparently in an infected area there is a stasis with dilatation of vessels and accumulation of leukocytes. The greater the reaction, the more leukocytes. They have also found an increase of leukocytes on the unaffected opposite side. While they cannot explain the phenomenon, they have noted a constant relationship to exist between that and the perifocal blood of the diseased side as well as between the peripheral and perifocal blood. With the regression of the process all three blood pictures, the peripheral, the perifocal and that of the corresponding opposite side, approximated one another more and more. The authors feel that the study of these blood pictures offers a criterion as to the progress of the disease.

Pathogenesis of Osteitis Fibrosa Generalisata.—In order to throw light on the etiology of osteitis fibrosa generalisata (Recklinghausen's disease) Marx injected guinea-pigs with parathyroid extracts. All of the animals injected developed a pronounced hypercalcemia. Four guinea-pigs died at the end of two months without exhibiting any change in the skeletal structure. In the two surviving animals there was demonstrated roentgenologically decalcification of the entire skeletal system as well as cystlike formation. Histologic preparations of tubular bones showed hemorrhages and fibrinous transformations, a pronounced osteoclasis and formation of osteoid tissue. He did not see the so-called brown tumors. The artificially induced hyperparathyroidism has here undoubtedly produced changes corresponding to those of Recklinghausen's disease in human beings.

Beiträge zur Klinik der Tuberkulose, Berlin

80: 537-699 (Sept. 16) 1932

Changes in Blood Vessels in Region of Tuberculous Caverns of Lung. M. Kasper.—p. 537.
Disturbances in Water Economy in Pulmonary Tuberculosis. Maria Keresztes.—p. 569.
Specific Gravity of Human Beings under Influence of Pneumothorax Therapy. A. V. von Frisch and A. Schneiderbaur.—p. 577.
Metabolism of Tuberculous Patients under Influence of Dietary Treatment. F. Strieck and A. Urra.—p. 585.
*Sound in Seropneumothorax Subdivided in Smaller Spaces. B. von Purjesz.—p. 595.
Genesis of Miliary Pulmonary Dissemination. H. Edel.—p. 599.
Pleural Adhesions in Pulmonary Tuberculosis. J. Fuld.—p. 612.
*Lauwers' Apicolysis as Complement to Incomplete Pneumothorax. W. Kremer.—p. 623.
*Treatment of Severe Tuberculous Pulmonary Hemorrhages. A. Sattler. —p. 627.
*Clinical Aspects of Cystic Changes of Lung. H. Siems.—p. 655.
Universal Cystic Bronchiectasis. G. Dániel and K. Jezsovics.—p. 666.
Scrofulosis and Parallergy. H. Fernbach and M. Weichsel.—p. 675.
Angiopneumography. L. de Carvalho.—p. 681.

Sound Developing in Subdivided Seropneumothorax.—Von Purjesz describes a shuffling sound that he observed in a patient with seropneumothorax. The pneumothorax was divided into smaller spaces that communicated with one another. The author thinks that the peculiar sound was produced by the simultaneous passage of fluid and air through the communicating opening. This sound should be differentiated from the sounds that are noticed occasionally in valvular and in fistular pneumothorax, though in certain respects it resembles them.

Apicolysis.—Kremer states that in Lauwers' apicolysis the first rib and a portion of the second are resected, and the aponeurotic attachments of the cupula pleurae are severed. The resection is done by means of a transverse section in the supraclavicular depression. If it is necessary, access can be gained to the phrenic nerve from the same incision and the nerve can be resected, frozen or crushed. This form of apicolysis, first recommended by Lauwers, has been advised also by Frangenheim, Bremen and Uhlenbruck. Moreover, theoretical reasoning makes this operation seem advisable in shrinking apical processes with small caverns. The author employed the method successfully in cases of this type, but the object of this report is to call attention especially to the usefulness of Lauwers' apicolysis in cases of pneumothorax, when there is an extended apical cavern. On the basis of observations on three such patients, he reaches the conclusion that if the use of the thoracocautery is impossible, this form of apicolysis is helpful for the completion of a pneumothorax when an apical cavern is still distended.

Treatment of Severe Tuberculous Pulmonary Hemorrhages.—Sattler designates a pulmonary hemorrhage in tuberculous patients as severe if from 100 to 200 cc. of fluid blood is expectorated in the course of one hemoptysis. He considers the following as the chief dangers of a severe hemoptysis: suffocation, likeliness of bronchiogenic propagation of the process, aspiration pneumonia, and the danger of weakning the patient. He thinks that medicinal treatment of hemoptysis, such as injection of hemostyptics, is only a first aid measure, and that the main treatment should be of a mechanical, that is, surgical nature. This is understandable when the cause or the source of a severe tuberculous hemorrhage is considered. Severe hemoptysis is usually a cavernous hemorrhage, always a vascular hemorrhage and at times caused by a ruptured aneurysm. Pneumothorax is the chief mechanical intervention employed in hemoptysis but under certain conditions the other forms of collapse therapy, such as phrenic exeresis, division of adhesion strands according to the method of Jacobaeus, extrapleural plugging of the lung and thoracoplasty, may be resorted to. The pneumothorax should be made as soon as possible, because severe pulmonary hemorrhages frequently recur. If the pneumothorax is successful, the hemorrhage ceases in nearly all cases. The author emphasizes that following a hemorrhage the examination of the patient, particularly

auscultation, which is frequently necessary to determine the location and the character of the hemorrhage, is not as dangerous as many believe; on the contrary, he considers it a great help in a quick and effective treatment.

Clinical Aspects of Cystic Changes of Lung.—Siems states that, although pathologists have repeatedly described cystic changes in the lung, clinicians have observed them only rarely or have regarded them as unimportant. The author pointed out in an earlier report that circumscribed cyst formations may occasionally lead to spontaneous pneumothorax. In this paper he relates the clinical histories of three patients and discusses the demonstrability, the character and the pathogenesis of cysts. The roentgenologic examination revealed in all three cases intrapulmonary hollow spaces. When the roentgenograms were considered together with the clinical aspects it became evident that these hollow spaces were not caverns due to processes of disintegration. In designating the hollow spaces as cysts, it should be considered that this term is quite inclusive; namely, that it includes emphysematous vesicles, so-called cicatricial cysts, and also cysts of congenital origin. The pathogenesis of a pulmonary cyst can generally only be surmised. One should consider the possibility of cicatricial cysts, and in this connection the etiologic significance of former attacks of pleurisy should not be overlooked. One of the patients whose histories are described had suffered from pleurisy. Another possibility is that the cyst was not intrapulmonary but was rather an interstitial emphysema formation; however, the anamnesis revealed nothing that would explain the development of an interstitial emphysema. It is also possible that the cyst was of congenital origin. The congenital nature of the cysts appeared especially likely in the second one of the reported cases. In the third case certain signs pointed to acquired bronchiectasis, while other factors indicated a congenital character of the cysts; but evidence in favor of the latter predominated. The course of the disease and the type and extent of the hollow spaces indicate congenital changes, which have been complicated by inflammatory processes. It is understandable that, once an inflammation has begun in this congenital system of hollow spaces, it becomes chronic, and secondary bronchopneumonias may develop. Thus the original clinical picture changes and differs from cases in which the cystic degeneration did not become complicated by secondary infections, but still the clinical picture on the whole differs from that of ordinary bronchiectasis.

Deutsche medizinische Wochenschrift, Leipzig

58: 1589-1628 (Oct. 7) 1932

Resorption from Inflamed Small Intestine. W. Nonnenbruch.—p. 1589.
*Withdrawal of Gastric Juice as Therapeutic Method. G. Katsch.—p. 1590.
Investigations on Action of Liver Therapy in Pernicious Anemia. S. Rusznyák and R. von Engel.—p. 1592.
Interrenalism and Sex Alterating Action of Suprarenal Cortex. J. Bauer and C. V. Medvei.—p. 1594.
Significance of Movements of Stomach for Development of Gastric and Duodenal Ulcers. R. Lotzin.—p. 1595.
Relations Between Sugar Content of Blood and of Urine in Diabetes Mellitus and in Normoglycemic Glycosuria. D. Adlersberg and O. Porges.—p. 1596.
Experiences with Ambulatory Treatment of Diabetes. F. Meythaler and J. Jacobi.—p. 1600.
Efficacy of Orally Administered Insulin Sediment. B. Sulzbacher.—p. 1604.
Insulin Dermatitis. V. Schenck.—p. 1605.
Pathogenesis of "Chloroprivic Azotemia." F. Brandt.—p. 1606.
Influence of Quality and Quantity of Light on Changes in Metabolism. L. Pincussen.—p. 1608.
Roentgenologic Diagnosis of Mucous Membrane of Large Intestine and Its Clinical Significance. H. Simchowitz.—p. 1609.

Withdrawal of Gastric Juice as Therapeutic Method.—In deciding to employ the withdrawal of gastric juice for therapeutic purposes, Katsch reasoned that it ought to prove helpful in the stimulated gastric secretion in patients with gastritis or with gastric ulcer, for he thought that a decrease in the chlorine content of the organism and of the blood would decrease the gastric secretion. In experiments it was found that withdrawal of gastric juice on several succeeding days produces an alkalotic alteration, but the most important factor in the withdrawal of the gastric juice is the considerable loss of chlorine. Following preliminary experiments, the author resorted to chlorine deprivation in patients with ulcer or with gastritis who had hyperacidity and especially those who showed hypersecretion. After the first diagnostic withdrawal of gastric juice, the patients receive a diet deficient in sodium chloride. By daily chlorine titration of the urine, the diet is controlled and the decrease in the elimination of chlorine is likewise revealed. However, as the diet alone does not effect a considerable decrease in the chlorine content of the blood, days are introduced on which gastric juice is withdrawn for several hours. According to the nature of the cases the juice is withdrawn one day a week or more if necessary, but a too energetic chlorine deprivation is not advisable. The author emphasizes that although he considers the described method a valuable aid, particularly in refractory cases with severe supersecretion, he does not advocate that it should replace other tried curative methods. He further points out that the method might prove helpful in other conditions in which chlorine deprivation is advisable, such as in edematous patients with decompensated circulatory disorders. Withdrawal of gastric juice decreases the blood pressure, and for this reason it is advisable in cases of hypertension that respond to a salt-free diet; it is not advisable, however, in patients with circulatory disorders who have low blood pressure.

Relations Between Sugar of Blood and Urine in Diabetes Mellitus and in Normoglycemic Glycosuria.—Summing up their observations, Adlersberg and Porges state that: 1. Patients with true diabetes and with a low sugar threshold of the kidney show, in response to dietary treatment as well as after insulin administration, considerable changes in the urinary sugar content, although the blood sugar shows normal reactivity. The insulin-dextrose equivalent is large in these patients, and they give the impression of being especially susceptible to insulin. It is hardly possible to counteract the glycosuria by insulin without producing hypoglycemic conditions. 2. There are cases of true diabetes in which a normoglycemic glycosuria exists. In such cases it is impossible to counteract the glycosuria completely by insulin, unless severe hypoglycemic conditions are tolerated. 3. In cases with normoglycemic glycosuria (so-called renal glycosuria) without diabetic metabolic disturbance, it is likewise impossible to counteract the glycosuria by means of insulin, because it is inadvisable to maintain an extreme hypoglycemia for a longer period. That those patients are susceptible to insulin is proved by the fact that the blood sugar content is considerably decreased following administration of insulin. In contradistinction to true diabetes mellitus with normoglycemic glycosuria, it is noticeable that renal glycosuria shows only a slight increase during a carbohydrate tolerance test. 4. It is inadvisable to classify mild cases of true diabetes mellitus with normoglycemic glycosuria as diabetes innocens. The renal normoglycemic glycosuria is a harmless anomaly, but true diabetes mellitus, even if it begins quite harmlessly, may become progressive. 5. Diabetic patients with a high sugar threshold of the kidney react only slightly to dietary measures and to insulin. They show a low insulin-dextrose equivalent and frequently simulate insulin resistance.

58: 1629-1668 (Oct. 14) 1932. Partial Index

Epiphrenal Syndrome. G. E. Sincke.—p. 1634.
Interrenalism and Sex Determining Action of Suprarenal Cortex. J. Bauer and C. V. Medvei.—p. 1636.
*Conservative Treatment of Renal and Ureteral Calculi. F. Sacki.—p. 1638.
Serodiagnosis of Malignant Tumors. H. J. Fuchs and W. K. Devrient.—p. 1640.

Conservative Treatment of Renal and Ureteral Calculi.—Encouraged by Klemperer's report about the prompt discharge of a renal calculus following medication with turpentine, and also by the fact that popular medicine employs oily substances for renal and biliary disorders, Sacki used a preparation consisting of oil of turpentine, oil of cade, oil of peppermint and sulphurized oil in a soft gelatin capsule, in the treatment of renal and ureteral calculi. He found the treatment effective in four cases of ureteral calculi and nine of renal calculi. The discharged calculi were the size of a lentil or somewhat larger. The capsules were also employed in patients with gallstones and with infections of the biliary passages. Whether calculi were discharged is not certain, except in two cases of closure of the choledochus. The author also gained the impression that attacks of cholecystitis and of cholangeitis with high fever subsided more rapidly after treat-

ment with the capsules, but he admits that an objective estimate is difficult in these cases. The periodic medication with the mixture of the various oils is advisable also for prophylactic purposes; namely, to avoid renewed formation of calculi. The author emphasizes that in employing the capsules he did not fail to give attention to the indications for a surgical intervention. He employed the treatment with the oil mixture only in cases in which a spontaneous discharge was possible; that is, when the calculi were not too large to pass through the ureter.

Deutsche Zeitschrift für Chirurgie, Berlin

237: 353-536 (Oct. 4) 1932. Partial Index

*Thrombo-Embolism. P. Neuda.—p. 353.
Value of Serodiagnostic and Biologic Reactions in Diagnosis of Echinococcus Disease. S. Lampiris.—p. 383.
Roentgen Kinematographic Studies of Influence of Pressure Variations Within Thorax on Heart and Circulation. T. Naegeli.—p. 398.
Contribution to Knowledge of Spondylolisthesis. G. Schmorl.—p. 422.
Cancer in Childhood. T. Eck.—p. 450.
*Operative Treatment of Peptic Ulcers That Cannot be Resected. L. Zukschwerdt and T. Eck.—p. 457.
*Disturbance of Motility of Bile Ducts as Precursor of Acute Pancreatic Necrosis. H. Stocker.—p. 498.
Characteristic Signs of Congenital Hernia. A. Gridnev.—p. 516.
Lateral Hernias: Hernias of Lateral Abdominal Wall. V. Orator.—p. 524.

Thrombo-Embolic Disease.—Neuda considers postoperative thrombosis as but another phase of thrombo-embolic disease of the internist. While the so-called medical cases occur in patients with debilitated or failing hearts, surgical cases are frequently observed in young or middle aged individuals with normal hearts. In addition to the well known causes of thrombosis, such as fall in the blood pressure and changes in the endothelium and the blood, still other causes must be added; namely, breaking down of the albumin molecule and infection. The author particularly stresses the importance of peripheral circulation and of venous blood pressure in the causation of postoperative thromboses, as contrasted to that of the heart as the principal cause. Venous blood pressure may sink while the arterial pressure is still normal. Venous stasis may lead to changes in the endothelium and the blood. Accumulation of blood in tissues, especially in chronic infectious states, may lead to formation of substances which, when introduced into the circulation, may produce unusual results. Thrombosis always precedes embolism. It develops in the tissues; more precisely, in the peripheral venous circulation. Therefore the solution of the problem of thrombo-embolic disease is the solution of the problem of the venous thrombus. Venous thrombosis can be followed by the entry of thrombi into the arterial tree. Here, falling blood pressure, slowing circulation and stasis are important contributory factors. Whereas arterial thrombi are seen in failing hearts, venous thrombi and pulmonary emboli are the result of failing peripheral venous circulation. The loosening of a thrombus is a lytic phenomenon, a second phase of the same pathologic process rather than the result of trauma. The author found that, when a drop of serum from a skin blister produced by cantharides plaster was added to a drop of the same individual's blood, agglutination of erythrocytes invariably took place. When, however, blood serum was added to a drop of blood, agglutination took place in certain cases only. In all the cases in which a postoperative thrombosis developed, this reaction was pronounced. He further found that agglutination in positive cases could be prevented by the addition to the serum-blood preparation of one drop of a liver extract. He therefore considers the positive test as diagnostic of a predisposition to thrombo-embolic disease and suggests liver therapy as a prophylactic and remedial agent. He has seen striking results in two of the cases of grave thrombophlebitic complications with the use of liver extract. Postoperative thrombosis occurred most frequently in late syphilitic patients and in carcinoma patients, two conditions in which fat metabolism is undoubtedly markedly affected. The author noted a rather characteristic linear hair defect of the scalp in persons who suffer from central thromboses and angina pectoris and feels that the etiology of syphilis or of carcinoma plays an important part here as well. A certain similarity is noted in the symptoms of cerebral and of cardiac, as well as of the postoperative cases. These are a predilection for nocturnal occurrence, a tendency to recovery and recurrence, and a possibility of an immunobiologic reaction.

Peptic Ulcers That Cannot Be Resected.—Zukschwerdt and Eck discuss the surgical treatment of peptic ulcers which, because of their localization, cannot be resected. Operative procedures on poor risks should be guided, in their opinion, entirely by the condition of the patient. The most simple procedures are employed in such cases. Perforation is treated by a suture without a gastro-enterostomy, and pyloric stenosis by a gastro-enterostomy. Among the ulcers that cannot be resected they include those situated high up on the cardia and those low down in the duodenum close to the biliary and pancreatic ducts. The material of the Enderlen clinic for the years 1918 to 1930 contained 18 per cent of cases in which the ulcers could not be removed by resection because of localization. Several methods of treatment are possible in these cases. Haberer and Schmieden advised a dietetic regimen in the place of operation. Excision of the ulcer combined with some form of a pyloroplasty, practiced principally in the United States, did not meet favor in Germany. The authors practiced jejunostomy in eight cases, with poor results. This procedure does not do away with hunger contractions or with the second phase of gastric secretion. The effect of the latter on the empty stomach is particularly bad. The results obtained in these cases with gastro-enterostomy were compared with those obtained with a partial gastric resection with pyloric exclusion. The operation as advocated by Finsterer for a nonresectable duodenal ulcer, and by Madlener for a nonresectable cardiac ulcer, has for its aim a wide resection of the stomach, the ulcer being left in situ. The removal of pyloric glands and a considerable portion of fundal glands should have the effect of markedly diminishing the secretory activity of the stomach. The authors performed an antecolic terminolateral anastomosis with an additional entero-anastomosis of Braun. One hundred and seven cases were treated by resection and seventy-one by gastro-enterostomy. Two patients died of fatal complications in the gastro-enterostomy group, one because of perforation and one of bleeding from the ulcer. This was not observed in the resection group. Mortality in the gastro-enterostomy group was 9.8 per cent, in the resection group 4.7 per cent; 85.5 per cent were cured in the resection group as contrasted with 50 per cent in the gastro-enterostomy group; 15 per cent of the gastro-enterostomized patients had frequent small hemorrhages, as compared with one instance in the resection group. Symptoms referable to ulcer were observed in 42.3 per cent of cases after gastro-enterostomy and in 3 per cent after resection. On the basis of these observations the authors advocate for these cases the method of partial gastric resection.

Disturbances of Bile Ducts as Precursor of Pancreatic Necrosis.—Stocker found that of forty-eight cases of acute pancreatic necrosis observed in the surgical clinic of Graz, twenty-eight presented stones and thirteen cholecystitis, a shrunken gallbladder or hydrops of the bladder. In ten cases (author's figures) no pathologic changes were observed either at operation or post mortem. Opie's purely mechanical theory of stone obstruction, as well as syphilis and arteriosclerosis, did not apply here. The author found in a study of the symptomatology of this group the existence of a vegetative neurosis. The patients were middle aged, frequently young individuals, predominantly of the female sex, and of asthenic type. Instability of the nervous system was manifested by hyperhidrosis, dermographism, belching, sour eructations and vomiting. Two cases exhibited a definite endocrine disturbance in the form of a thyrotoxicosis. The same causes that can produce a motor neurosis of the gastro-intestinal tract may similarly affect the gallbladder, the common bile duct, the sphincter of Oddi and the papilla of Vater. The author feels justified in assuming for these cases a preexisting functional motor disturbance of the bile ducts, leading to bile stasis. The particular disturbance may be a hypomotility of the gallbladder in a sympatheticotonic or a hypermotility in a vagotonic patient. Stasis is the result in either case. Stasis may be followed by infection and stone formation. The neurosis may therefore be considered the first stage of the bile duct disease. At operation, these gallbladders were found markedly distended. Bile stasis always coincided with the pancreatic catastrophe. Cholecystectomy is indicated in order to remove the organ chiefly concerned in the upset in the biliary system as well as to prevent recurrence of the attack.

Klinische Wochenschrift, Berlin

11: 1697-1736 (Oct. 8) 1932

Experimental Analysis of Chronic Intoxication. E. Starkenstein.—p. 1697.
Action of Thyrotropic Hormone of Anterior Lobe of Hypophysis on Laying Hens. P. Noether.—p. 1702.
*Hypertrophy of Parotid Gland as Symptom of Diabetes Mellitus. E. Flaum.—p. 1704.
*Mechanism of Action of Thyroxine. T. von Verebély.—p. 1705.
Globulin Tests in Serum: Method for Determination of Coagulability of Blood. W. Hartoch.—p. 1706.
*Increase in Basal Metabolism in Chronic Arthropathies. H. Kramer.—p. 1708.
Further Experiences with Tribrom-Ethanol Anesthesia During Childhood. A. Oberniedermayr.—p. 1710.
*Serologic Diagnosis of Brucella Abortus Infection in Human Beings. C. Schlesmann.—p. 1711.
Quantitative Determination of Indican in Urine. J. Broekmeyer.—p. 1713.

Hypertrophy of Parotid Gland as Symptom of Diabetes.—Flaum was induced to investigate this subject by observations on a woman with hypertension, who in the course of several years had frequent attacks of swelling of the parotid glands. These swellings were not accompanied by pains, fever or other signs of inflammation, but caused only a feeling of tension. In the intervals between the attacks, the parotid glands remained somewhat larger than normal. Later diabetes mellitus was detected and the attacks of swelling of the parotid glands continued to recur. This resulted in a peculiar, characteristic transformation of the features of the face. Later the author noted that in patients with diabetes this peculiarity of the shape of the face is frequently present, and he thinks that other physicians have probably observed the same phenomenon. That this enlargement is not due to an increase in the subcutaneous fat tissue can be determined by palpation. In order to obviate self deception in his further investigations, the author decided not to examine the parotid glands of patients with diabetes but to examine persons with abnormally large parotid glands. Among twenty-seven persons with swelling of the parotid glands, sixteen showed a more or less pronounced glycosuria during a free selected diet and also a corresponding increase in the blood sugar values while fasting. The other eleven persons, who did not eliminate sugar in the urine, were subjected to carbohydrate tolerance tests. Compared to the curves of normal persons, their curves showed a higher increase, a longer persistence of the high values and a slower decrease. It was also noted that the majority of these persons belonged to that constitutional type of diabetic patients which by R. Schmidt has been designated as "sthenic hypertension diabetes." The author is as yet not able to state what functional processes are the underlying causes of the enlargement of the parotid gland in cases of insufficiency of the insular apparatus of the pancreas, but he calls attention to studies that have given indications for an incretory connection between the parotid glands and the pancreas. From this he concludes that the concurrence of hypertrophy of the parotid glands with insufficiency of the pancreas may perhaps be interpreted as a compensatory process.

Mechanism of Action of Thyroxine.—In investigating the action of thyroxine, von Verebély observed that in order to effect an increase in the basal metabolism thyroxine requires a certain time, and also that if it is administered in vivo it increases the oxidation in those organs on which it had no effect in vitro. He thinks that these observations justify the assumption that thyroxine acts by mediation of a central organ. Although animals that had been treated with thyroxine showed a metabolic increase only after thirty-eight hours, they appeared already excited and irritated after twenty minutes. This observation induced the author to try the oxidation experiment on the central nervous system. He found that the same concentration of thyroxine, incapable of increasing in vitro the oxidation of the muscles or of the liver, produced considerable oxidation in the brain. In this connection he also recalls observations by other investigators, who found that injection of thyroxine is followed by a considerable increase in the iodine content of the brain, particularly in certain portions of it. The author concludes that thyroxine effects this increase of metabolism by increasing the oxidation of the central nervous system; that is, the central nervous system is the mediating organ in the action of thyroxine.

Increase in Basal Metabolism in Chronic Arthropathies.—Kramer points out that the etiology of many forms of arthropathy is still unknown. In the search for new differential symptoms he employed the basal metabolism test in afebrile chronic arthropathic disorders. Patients with fever, and those who were known to have infections like gonorrhea or tuberculosis, were not examined. In nearly all the patients who were subjected to a metabolism test, the erythrocyte sedimentation speed was considerably increased but the leukocyte values were usually changeable. Tabular reports show that in some of these patients the metabolic values were within normal limits. In others it was slightly increased, and in a third group the increase was considerable. Following treatment, the increases in the metabolism as well as in the sedimentation speed were considerably reduced. Discussing the causes of the increase in the metabolic rate, the author states that symptoms indicating a thyroidal disturbance were absent. The fact that the metabolic disturbance was most pronounced in patients in whom the atrophy of the musculature and of the periarticular tissues was severest is considered by the author as favoring the theory that products of tissue disintegration act as stimulants of metabolism and also increase the sedimentation speed. The author considers the metabolism tests helpful for the diagnosis and particularly for the prognosis of chronic arthropathy, because increased metabolism and increased sedimentation speed indicate a progressive disease process that has not yet become stationary and that can be checked and in many instances improved by suitable treatment.

Serologic Diagnosis of Brucella Abortus Infection.—Although agglutination and complement fixation have proved reliable for the demonstration of Brucella abortus infection in human beings, Schlesmann wished to perfect a method that would prove more suitable for use in smaller rural hospitals having fewer laboratory facilities. He devised a precipitation method for which prepared antigens can be used and which can be preserved for a year. In summing up his experiences with the precipitation method he admits that it is not as sensitive as complement fixation and especially not as sensitive as agglutination. Moreover, the fact that only absolutely clear serums can be used is also a disadvantage, but the precipitation method has the advantage of a simple technic. Another serologic method described by the author is a flocculation test, which employs a centrifugation method and Meinicke's clarification extract. He states that in nearly all cases in which agglutination and complement fixation gave positive results the precipitation method and the centrifugation method with Meinicke's clarification extract were likewise positive. The centrifugation method is not suitable for the detection of Brucella abortus infection in patients with a positive syphilis reaction, but it may indicate the presence of syphilis. The author thinks that, although agglutination is the most sensitive method, the precipitation and the centrifugation methods may nevertheless prove helpful as controls and in cases in which the other tests cannot be made.

11: 1737-1776 (Oct. 15) 1932

Angina Pectoris. F. Büchner.—p. 1737.
Protection of Skin Against Infection. A. S. von Mallinckrodt-Haupt.—p. 1739.
*Fate of Pentoses in Healthy and in Diabetic Organism. E. Grafe.—p. 1742.
Metabolism of Amino-Acids in Animal Organism. H. A. Krebs.—p. 1744.
Action of Thyroid and Anterior Lobe of Hypophysis. H. Eitel and A. Loeser.—p. 1748.
Central Nervous Regulation of Blood. F. Hoff.—p. 1751.
Polypous Bronchial Carcinoma and Its Operability. H. Adler.—p. 1755.
Method for Determination of Protein Fractions of Cerebrospinal Fluid. V. Kafke, C. Riebeling and K. Samson.—p. 1757.
*Diastase Content of Skin in Syphilis: Relations Between Skin and Brain. A. Marchionini and B. Ottenstein.—p. 1758.
Influence of Fluorescein on Cornea of Rabbits. K. Herzberg.—p. 1760.
Method for Determination of Iodine Content of Blood. E. Widmann.—p. 1761.
Investigations on Presence of Hormone of Anterior Lobe of Hypophysis in Saliva of Gravidas. B. Ofstad.—p. 1761.
Difficult Problems in Treatment of Diabetic Children. R. Priesel and R. Wagner.—p. 1762.

Fate of Pentoses in Organism.—Grafe thinks that the studies carried out by him and by his collaborators in the course of several years have finally cleared the most important problems in the behavior of the pentoses in the healthy and in the diabetic organism. All his experiments were made with

the *l*-xylose, which is readily soluble in water and quite sweet. Too large doses (over 50 Gm. given at once) may cause diarrhea. The average daily quantity should be about 30 Gm. The dextrose metabolism and the pentose metabolism are independent of each other, which can be determined by examination of the urine as well as by the blood sugar content. After administration of xylose the blood sugar content always increases somewhat, usually irrespective of the dose. In healthy persons the increase generally does not exceed 0.05 per cent; in diabetic persons the values are sometimes slightly higher. Only a small portion of the xylose that is not eliminated from the organism is retained. The largest portion is oxidized, which can be proved by respiratory tests. The combustion of xylose is also indicated by its protein sparing action, although this is not as pronounced as in the case of dextrose. As a stimulator of the insulin secretion, pentose is almost equivalent to the dextroses. A glycogen production in the liver could not be demonstrated. The behavior of the diabetic organism after xylose administration does not differ from that of the normal organism, and consequently the author thinks that nothing can be said against its use as a substitute for sugar in cases of diabetes.

Diastase Content of Skin in Syphilis.—Marchionini and Ottenstein state that after they had found a typical syphilitic change in the cerebrospinal fluid, namely, a disappearance of the diastase, they decided to determine whether the diastase content of the skin tissues was likewise influenced by syphilis. In making the tests they employed Ottenstein's method for the examination of the dialysate fluid. They give the following summary: 1. The determination of diastase in the skin reveals that in patients with syphilis, in contradistinction to persons without skin disease or to those with nonsyphilitic skin diseases, the diastase content is increased. 2. Since this considerable increase in the diastase content of the skin is present also in diabetes mellitus, the function of the pancreas was examined in the syphilitic patients. 3. The factors that are the criteria of the diabetic metabolic disturbance, namely, skin dialysate sugar, blood sugar and blood diastase, indicate by their normality that the increase in diastase is not due to a pancreogenic disturbance. 4. There are no relations between the increase in diastase and the complement fixation reaction according to Wassermann in the blood in syphilis. 5. The increase in the diastase content of the skin is related to an increased formation of diastase in the skin. 6. Since in syphilis there exists at the same time an increase in the diastase content of the skin and a decrease in the diastase content of the cerebrospinal fluid, the latter permitting inferences to certain changes in the brain, antagonistic relations between skin and brain are considered probable. 7. The determination of diastase in the skin dialysate is proposed as a diagnostic reaction. If values of more than 80 skin diastase units are detected in persons who show clinical signs of syphilis, who have not received antisyphilitic treatment, and in whom the blood sugar and blood diastase values are normal, the skin diastase reaction can be taken as a corroboration of the diagnosis of syphilis.

Münchener medizinische Wochenschrift, Munich

79: 1665-1704 (Oct. 14) 1932. Partial Index

Tonsillectomy in Acute Tonsillitis and in Tonsillogenic Sepsis. E. Wirth. —p. 1673.
*New Method for Demonstration of Closure of Vena Cava Inferior. G. Katz.—p. 1676.
*Multiple Venous Thrombosis, a Hitherto Unknown, Early Symptom of Carcinoma of Pancreas. E. Thoenes.—p. 1677.
Diagnosis of Closure of Choledochus. L. Winternitz.—p. 1678.
Unilateral Albuminurias. P. Wichels and R. Pannhorst.—p. 1679.

Method for Demonstration of Closure of Vena Cava Inferior.—Katz reasoned that, when the vena cava inferior is closed, the collateral circulation goes through such a widely branched network that the route is several times as long as the direct route through the vena cava inferior. This and the fact that the blood also travels more slowly through the narrower channels must retard the blood stream coming from the lower extremities and going to the heart. Thus it should be possible to diagnose obliteration of the vena cava inferior if a considerable retardation of the blood stream, going from the lower extremities to the heart, can be demonstrated. The author made tests on three healthy persons, on three patients with myomalacia cordis and on one patient in whom thrombosis of the vena cava inferior was indicated by symptoms such as severe edema of the lower extremities and anasarca of the trunk from the third lumbar vertebra downward. He employed Leschke's technic, in which 1 cc. of a 50 per cent solution of calcium bromide is injected slowly into the cubital vein, and a feeling of warmth in the head is watched for. The feeling of heat is due to the influence of the calcium ions on the heat susceptible nerve terminations; that is, in the interval that elapses between the injection and the feeling of warmth the blood stream must have traveled from the point of injection to the head, a distance of approximately 170 cm. In healthy persons this feeling of warmth develops from nine to eleven seconds following the injection. In order to determine a disturbance in the circulation in the region of the vena cava inferior, the author determined in the same individual the interval between injection into the cubital vein and the feeling of warmth in the head and the interval in case of injection into the dorsal vein of the foot. Since in the latter injection the distance to be traveled is longer, the required time is also longer. In normal persons the difference was found to be from seven to ten seconds, in the patients with myomalacia cordis it was from twelve to thirteen seconds, and in the patient with thrombosis of the vena cava inferior it was fifty-five seconds. The author thinks that if the difference is from twenty to thirty seconds a closure of the vena cava inferior should be thought of, but if the difference is more than that a closure is certain. In the conclusion he emphasizes that the method is simple and harmless and that it is a valuable aid in determining whether edema of the lower extremities is due to weakness of the cardiac muscle or to thrombosis of the vena cava inferior.

Multiple Venous Thrombosis as Early Symptom of Carcinoma of Pancreas.—Thoenes relates the clinical histories of three patients with carcinoma of the pancreas, which are of especial interest because the carcinoma was complicated by multiple thrombosis. The three cases have this in common: (1) development of the thromboses when there were no subjective nor objective signs of carcinoma, and (2) extraordinary extension and unusual localization (veins of the arm). Whereas in the first and in the third patient the presence of a malignant tumor, although of unknown location, was indicated by metastasis of the lymph nodes and of the liver, the second patient showed no signs of carcinoma until he died. The symptoms of this patient, who was 25 years of age, were indicative of a septic infection of the biliary tract. In the discussion of the possibility of a connection between the multiple thrombosis and the cancer of the pancreas the author expresses the opinion that not the carcinoma as such but rather the fact that the pancreas was carcinomatous has a certain relation to the multiple thrombosis. Although the literature reports no similar cases, he concludes from observations on the three patients that extensive thromboses, when concurring with indefinite symptoms of tumor, indicate the pancreas as the site of the primary tumor.

Wiener Archiv für innere Medizin, Vienna

23: 1-200 (Oct. 1) 1932

*Relations Between Anemias and Diseases of Digestive Tract. N. Jagić and R. Klima.—p. 1.
Spastic and Obliterating Vascular Processes With and Without Ischemic Disturbances. J. Bauer and G. Recht.—p. 11.
*Combination of Irrigation and Iodized Oil Treatments in Nontuberculous Empyema. R. Boller.—p. 37.
Occurrence of Vascular Sounds and Decrease of So-Called Minimal Blood Pressure. W. C. Aalsmeer.—p. 61.
Determination of True Median Arterial Pressure. K. Gotsch and O. Klein.—p. 75.
Autotoxic Cyanosis. K. Hitzenberger.—p. 85.
*Significance of Spleen for Carbohydrate Metabolism. E. Flaum and A. Schlesinger.—p. 97.
Graphic Recording of Arterial Hypertonus and Its Reflexes. O. Peczenik. —p. 123.
Myogeloses. St. Rueff.—p. 139.
Tumor-Like and Cystic Disorders of Pericardium. R. Kienböck and K. Weiss.—p. 155.
Influence of Chronic and Acute Hyperinsulinization on Alimentary Hyperglycemia. R. Boller and K. Überrack.—p. 173.

Relations Between Anemias and Diseases of Digestive Tract.—Jagić and Klima show that in diseases of the gastrointestinal tract, particularly in those that are accompanied by

prolonged functional disturbances of the digestive apparatus, anemias are frequently present. Some of these anemias have the tyical symptoms of pernicious anemia but there are also types of hypochronic anemias. The disorders of the gastro-intestinal tract are the eliciting cause of these anemias and also of the pernicious anemia that is frequently observed. Since in a number of patients with disorders of the small and large intestine the gastric function was found to be entirely normal, and because in one of these patients, who had the symptoms of pernicious anemia, the gastric juice, when tested for Castle's principle, showed antianemic action, it has to be assumed that disturbances in the lower portion of the small intestine and in the large intestine may lead to pernicious anemia even if the gastric function is intact. The authors state that the hypochronic anemias that develop in the course of gastro-intestinal disturbances frequently resemble pernicious anemia.

Irrigation and Iodized Oil Treatments in Nontuberculous Empyema.—Boller, after calling attention to the shortcomings of the various therapeutic methods that have been employed in the treatment of empyema, describes a method that he found helpful in a number of cases of nontuberculous pleural empyema. The technic is as follows: The pleural cavity is tapped at the lowest point of the exudate with a trocar of 1.5 mm. caliber, and the pus is withdrawn in the usual manner. Then when pus is no longer discharged, a second trocar is introduced several intercostal spaces above the first trocar. Through this upper cannula is injected physiologic solution of sodium chloride, stained with halogen solution in the proportion of 1 to 10. The irrigation fluid is withdrawn by suction through the lower cannula. If, however, the empyema is chambered and adhesions prevent a communication, it may be impossible to withdraw the fluid through the lower cannula; but by introducing and withdrawing the fluid alternately through the upper and lower cannula, it is nearly always possible to establish a communication. The irrigation is continued until the fluid becomes clear. Then the fluid remaining in the pleural cavity is withdrawn by suction. In this procedure, care should be taken that the second cannula is closed, in order to avoid an extensive pneumothorax. Then from 15 to 20 cc. of iodized poppy-seed oil 35 per cent (lipiodol descendant) is introduced through the upper cannula. Because of the high specific gravity of this type of poppy-seed oil, the remaining pus floats on top and can be withdrawn. Then from 15 to 20 cc. of iodized poppy-seed oil 10 per cent (lipiodol ascendant) is injected through the lower cannula after the upper cannula has been withdrawn. Following this the patient is kept at bed rest for several days, and then, to determine the level of the exudate, a roentgen examination is made. Repeated roentgen controls and the fever curve determine the further therapeutic procedure. Usually several irrigations and oil fillings are necessary. In one instance, examination eighteen months after the treatment revealed that the iodized oil deposit had changed little, which indicates an extremely slow resorption, and consequently toxic effects do not have to be feared. From observations on nine patients the author concludes that in nontuberculous empyema this treatment gives better results than the surgical methods. He has also tried the method on some patients with tuberculous empyema, but because in most of these the treatment is not yet completed, final evaluation is not possible as yet.

Significance of Spleen for Carbohydrate Metabolism.—Flaum and Schlesinger determined the hyperglycemia curve on white rats before and after splenectomy. They found that the dextrose tolerance of the animals is considerably reduced following splenectomy, and they conclude from this that the significance of the spleen for the carbohydrate metabolism lies in the fact that it increases the tolerance. They studied the mechanism of this function of the spleen in parabiotic experiments. When only one of the parabiotic animals is splenectomized, the alimentary hyperglycemia is not higher than before splenectomy, because the spleen of the other animal compensates for the abolished splenic function. Only after both animals have been splenectomized is there a noticeable increase in the alimentary hyperglycemia curve. The authors think that this proves the incretory nature of the splenic function that increases the carbohydrate tolerance.

Wiener klinische Wochenschrift, Vienna

45: 1273-1304 (Oct. 14) 1932

Trauma and Nervous System. E. Raimann.—p. 1273.
*Conditions Determining Ray Susceptibility of Malignant Tumors. J. Borak.—p. 1277.
Method of Blood Transfusion. W. Falta.—p. 1283.
*Epoophoron—an Incretory Organ. J. Mathis.—p. 1284.
Capillary Symptoms in Hypertension. W. Kollmann.—p. 1285.
Clinical Experiences with Peritonitis Serum. E. Reichl.—p. 1288.
Aspiration Pneumothorax. J. Sorgo.—p. 1290.
Prevention of Embolism. H. Heyrovsky.—p. 1291.

Ray Susceptibility of Malignant Tumors.—Borak states that in the beginning of the era of the ray therapy of tumors it was believed that all neoplastic cells have the same ray sensitivity. Later it was recognized that there are differences in the ray susceptibility of various tumors, but it was thought that the ray sensitivity of tumor cells is always greater than that of the matrix and it was hoped that by adjusting the technic of irradiation to certain histologic factors the tumor could be made to disappear. Now it has been realized that there are tumors constitutionally ray susceptible and tumors constitutionally nonsusceptible to irradiation. Only those tumors that are constitutionally susceptible to rays can be completely counteracted by irradiation, whereas in tumors that are nonsusceptible to rays only palliative effects can be obtained. The author thinks that the ray susceptibility of a tumor is determined primarily by the ray susceptibility of the matrix. Tumors that originate from ray susceptible tissues are constitutionally ray susceptible, while tumors originating in tissues nonsusceptible to rays are constitutionally nonsusceptible to ray therapy. As constitutionally ray susceptible, as a result of the ray susceptibility of their matrix, the author lists the following tumors: seminomas, folliculomas, lymphosarcomas, tricho-epitheliomas, skin epitheliomas and squamous-cell epitheliomas (lips, oral cavity, upper air passages, cervix uteri). He considers as constitutionally nonsusceptible to rays all tumors originating in glandular tissues (adenocarcinomas of mamma, of gastro-intestinal tract and of prostate); also the tumors developing in connective tissues (spindle-cell sarcomas, fibrosarcomas, chondrosarcomas and osteosarcomas); and finally the tumors of the nervous system (neuro-epitheliomas, meningiomas and gliomas).

Epoophoron—an Incretory Organ.—It is pointed out by Mathis that most textbooks on anatomy and histology designate the epoophoron as a rudimentary organ without special function. However, on the basis of careful studies on the human epoophoron and on that of many animals, he reaches the conclusion that the epoophoron is not an inactive organ. He found that the epithelium of its tubules is glandular epithelium and that the secretion takes place in the tubules. The epoophoron has no excretory duct, being a closed gland. The author thinks that the secretion is carried by the blood or the lymphatic system. He is unable to say as yet but he considers it possible that the secretion of the epoophoron is a hormone. After citing the observations of several other investigators, he states that his own investigations revealed that in young persons and during senility the secretion of the epoophoron is slight, whereas during gravidity there is an especially active secretion.

Zentralblatt für Gynäkologie, Leipzig

56: 2449-2512 (Oct. 8) 1932

Elimination of Follicular Hormone and of Hormone of Anterior Lobe of Hypophysis in Gravidas with Dead Fetus and in Normal Puerperium. H. Runge and C. Clausnitzer.—p. 2450.
Action of Hormone of Corpus Luteum on Human Uterus. C. Clauberg.—p. 2460.
Hormone Therapy in Oligohormonal Secondary Amenorrhea. O. Gragert.—p. 2463.
Investigations on Ferments During Menstruation. E. Rabau.—p. 2469.
*Changes in Blood After Acute Loss of Blood and Their Sequelae. F. Schmöe.—p. 2471.
*Advantages and Disadvantages of Conservative Myoma Operations. B. Aschner.—p. 2477.
Invagination and Eversion of Uterine Tube in Tubal Abortion. T. M. Grosdov.—p. 2488.
Artificial Formation of Vagina According to Wagner-Kirschner. P. Heller.—p. 2491.
Diagnosis of Pains in Hypogastric Region. E. Spier.—p. 2494.

Changes in Blood Following Acute Loss of Blood.—Schmöe emphasizes that it should be borne in mind that the primary factor in the adjustment of the organism to loss of

blood is the stabilization of the blood pressure. The organism strives to overcome the loss of blood by compensatory processes such as the contraction of the capillaries, which in turn limits the vascular channel and increases the heart action. Then fluid is drawn from the tissues into the blood channels. This phase, which is designated as hydremia or oligocythemia, is followed by the third one, that of regeneration of the lost blood. If all these compensatory mechanisms act promptly, the circulation is maintained. But since these processes, particularly the hydremia, require several days, posthemorrhagic complications should be watched for, not only the first two days but several days longer, so that if the blood pressure becomes too low analeptics can be administered and blood transfusion can be resorted to. The author considers blood transfusion the ideal therapeutic measure. Infusion of sodium chloride solution he considers of little value and even harmful, because it increases the hydremia and with it the deficient blood supply of brain and tissues. He cites other investigators, who share his opinion about the harmful effects that may be produced by posthemorrhagic infusion of solution of sodium chloride and then cites one who, in animal experiments, obtained good results with infusion of homogeneous blood serum. However, if blood transfusion is possible it should be employed, for in combination with cardiac and circulatory stimulants it is the best treatment.

Conservative Myoma Operations.—Aschner shows that the advantages of the conservative operation of myomas, particularly the preservation of regular menstruation, outweigh by far its disadvantages, such as greater morbidity, possible relapse and complicated wound conditions. He thinks that the more the importance of the menstrual discharge is recognized, even for women beyond the age of 40, the more will the desirability of a conservative myoma operation be realized. There is no valid reason to take the age of 40 as the limit for the conservative operation, since menstruation may persist for from ten to fifteen years after that. The author reminds those who advise conservative operation only for the sake of the preservation of the child-bearing capacity or for psychologic reasons that menstruation is likewise of great importance. From the standpoint of number, size and location of the myomas, the indications for conservative operation should not be too much restricted. The author considers laparotomy as the most reliable method and he thinks that opening of the uterus in not especially infectious cases does not need to be feared. He thinks that in the majority of cases enucleation and resection can be done according to one of four methods that he describes and illustrates. The first illustration shows the resection of the anterior uterine wall, the second the resection of the anterior and posterior wall, the third the transverse resection of the fundus (adnexa in situ), and the fourth the high supravaginal amputation (adnexa separated). The author also recommends the retroperitoneal transposition of the uterus, for he thinks that subperitoneal hematomas are relatively harmless and may become resorbed, whereas hemorrhage into the abdominal cavity involves dangers. He admits that the morbidity is relatively high after conservative myoma operations but he thinks that, if the operation is done according to one of the four described methods, the only disturbance generally encountered is increased temperature due to resorption.

Finska Läkaresällskapets Handlingar, Helsingfors

74: 653-711 (Aug.) 1932

Herpes Zoster and Varicella. F. Saltzman.—p. 653.
*Contribution to Question of Varicella and Herpes Zoster. E. Lövegren.—p. 663.
Pathogenesis of Otosclerosis. F. Leiri.—p. 665.
*Prognosis in Lymphogranulomatosis with Regard to Clinical Symptoms, Roentgen Treatment and Effect on Symptoms. R. Hohenthal.—p. 678.

Contribution to Question of Varicella and Herpes Zoster.—Lövegren's cases offer evidence that a varicella infection can sometimes be transmitted through herpes zoster.

Prognosis in Lymphogranulomatosis.—Most of Hohenthal's twelve patients with lymphogranulomatosis had a hypochromatic anemia; leukocytosis and lymphopenia were usually seen, and the number of eosinophil cells ranged from 0.1 to 5.2 per cent. The variation in number and size of the lymphoma was without prognostic significance. Enlarged spleen and liver did not appear in cases with a duration of more than thirty-two months. The effect of roentgen treatment was almost wholly symptomatic but did perhaps prolong life in two cases in which a slight lymphocytosis was noted. The prognosis or total duration of the disorder seemed to be independent of the degree of anemia, leukocytosis and eosinophilia depending mainly on the more or less chronic nature of the disease. As a rule, death occurred in from one to four years after appearance of the lymphoma; one patient is still living, more than five years after the onset of the disease.

Norsk Magasin for Lægevidenskapen, Oslo

93: 1033-1136 (Oct.) 1932

*Investigations on Changes in Blood in Paralytic Ileus. E. Hegge.—p. 1033.
After-Examination in Cases of Operated Gastroduodenal Ulcer in Naval Hospital from 1919 to 1931. K. Haugseth.—p. 1060.
Roentgen Treatment of Metrorrhagia. J. Frimann-Dahl.—p. 1067.
*Effect of Gerson-Hermannsdorfer-Sauerbruch Diet on Metabolism. M. Tesdal.—p. 1073.
Monograms for Computation of Ambard's Constant and van Slyke's Index. S. Oftedal.—p. 1082.
*Familial Occurrence of Extrapyramidal Syndromes and Psychosis. C. Giertsen.—p. 1086.
Contribution to Treatment of Epilepsy, with Especial Regard to Ketogenic Diet and Effect on Organism. O. W. Havrevold.—p. 1095.

Changes in Blood in Paralytic Ileus.—Hegge examined the chloride and residual nitrogen in the blood in cases of postoperative intestinal and gastric paralysis and of peritonitis and in two cases of paralytic ileus after trauma. He states that in operative cases without complications, after different kinds of anesthesia, slight changes appear in the chloride and residual nitrogen of the blood. In cases complicated with intestinal or gastric paralysis, the blood chloride falls rapidly and a considerable azotemia is seen. In peritonitis the blood changes seem closely dependent on the complicating intestinal paralysis. With regard to these changes in the blood, paralytic ileus is identical with mechanical ileus, and compensation for the loss of chloride and fluids is thus equally important in paralytic and in mechanical ileus. The advantages of hypertonic salt solution intravenously are emphasized. In gastric paralysis, permanent drainage through a duodenal tube is recommended.

Effect of Gerson-Hermannsdorfer-Sauerbruch Diet.—Tesdal is inclined to ascribe the good result of this diet in cases of tuberculosis of the skin to the more marked lactic acid production in the blood of patients with tuberculosis of the skin than in patients with pulmonary tuberculosis.

Familial Occurrence of Extrapyramidal Syndromes and Psychosis.—In the family described by Giertsen an extrapyramidal disorder and psychosis appeared in the mother at the age of 40, and in three children disturbances set in before 30: in one a syndrome of akinetic kind and psychosis, in the second a spastic-athetotic syndrome, and in the third a psychosis. He is inclined to consider the disorders as familial (heredodegenerative?), taking on different forms according to the localization.

Svenska Läkaresällskapets Handlingar, Stockholm

58: 153-200, 1932

*Contribution to Knowledge of Bacteriology of Abortion. L. Simon and O. Gabinus.—p. 153.
Contribution to Knowledge of Disinfection by Steam: II. Investigations on Significance of Admixture of Air in Disinfection in Saturated Steam. R. Bergman.—p. 158.
Studies on Permeability of Retina. H. Key.—p. 165.

Bacteriology of Abortion.—Simon and Gabinus investigated the bacterial flora in 103 cases of abortion. Culture of the cervical secretion gave positive results in 76.3 per cent of the cases and blood cultures in 40 per cent, with B. coli, anhemolytic streptococci and anaerobic streptococci predominating and hemolytic streptococci occurring in only 4 per cent of the cases. There was bacteremia in 40.8 per cent of the clinically uninfected cases and cases with infection localized in the endometrium, and in 31.6 per cent of those with more extensive infection. In three of the nine fatal cases hemolytic streptococci were found, in three anhemolytic streptococci, in one anaerobic streptococci, in one staphylococci and in one B. coli in pure culture; in five of these cases there was also mixed infection with B. coli.